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W. B. Scott.

Princeton, Oct. 20,
1939

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SOME MEMORIES OF A PALAEONTOLOGIST

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UNDERWOOD AND UNDERWOOD

W. B. Scott

SOME MEMORIES OF A PALAEONTOLOGIST

By

WILLIAM BERRYMAN SCOTT

1939

PRINCETON

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PREFACE

THIS book is the greatly reduced version of an autobiography which I wrote as a family record for my children. It seemed worth while to prepare an abbreviated story for publication, as recording a side of American life which is systematically ignored by our younger writers and of which Europeans seem to be entirely ignorant. Some one has said that autobiography is necessarily fiction, but I repudiate that judgement for myself. It is, of course, necessary to make a selection of facts out of an immense store of memories and records, but I have honestly endeavoured to make the selection with perfect fairness. The story is but a sketch, but an undistorted one. I have a good memory, nothing phenomenal, but still trustworthy, and there is before me a very long series of letters, written to my Wife, both before and after our marriage. These letters, supplemented by diaries, have enabled me to make out an unusually complete narrative, in which the dates are but rarely uncertain. Whatever error of fact or opinion these chapters may contain, they are not fiction in any sense.

I count myself to have had a fortunate and interesting life; the griefs and sorrows, of which I have had a full share, have been due to the loss of those dear to me. I have no grievances to exploit, or enemies to belabour; nevertheless, if I have succeeded in fairly transcribing my story, it can hardly fail to be an interesting one, because of the people that I have known and the places which I have visited.

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CHAPTER ONE

CHILDHOOD

INASMUCH as my family, especially the maternal side of it, had a very profound and lasting influence upon my career, it will be necessary to begin my story with some account of my relatives and forebears for several generations.

My Father, the Rev. William McKendree Scott, was born in Ohio in 1818; his father, likewise William Scott, was an immigrant from the north of Ireland, as was also the original American ancestor of my maternal Grandfather, Charles Hodge. Thus, in blood, I am chiefly Scotch-Irish, but three other nationalities enter into the highly complex result. A great-grandfather, Richard Bache, was an Englishman; one great-grandmother, Mary Blanchard, was of French origin, and another, Catherine Wistar, of German descent. My Father was a very tall, stately and handsome man, whose face and figure I can distinctly recall, though he died before my fourth birthday. He shared all the toils and hardships of pioneer life, but was, nevertheless, determined to get an education, though most of his studying was done by the winter firelight. He prepared himself and entered Jefferson College, which had not then united with Washington to form the present Washington and Jefferson College, and was graduated in 1843(?). He next came to the Princeton Theological Seminary, where he met my Mother, Mary Elizabeth Hodge, and they were married in 1847.

After their marriage, my parents settled in Danville, Ky., where my Father was pastor of the Presbyterian church and professor of English Literature (*Belles Lettres* it was called then) in Centre College. At Danville my parents remained for nearly ten years and there were born my brothers, Charles Hodge Scott (1849) and Major General Hugh Lenox Scott (1853), as well as a brother and sister who died in infancy.

My Mother always cherished the warmest affection for her Kentucky friends and the happiest part of her life was passed in Danville, before dread anxiety for her husband's health had been awakened. She used

to tell us most interesting things about life in one of the slave states, where slavery was manifested in its mildest and least objectionable form. One thing that has always remained clearly in my memory was her account of the constant dread of a slave insurrection, which hung over the heads of the whites. The example of Hayti and San Domingo was ever before them and their intense hatred of the Abolitionists, who made a hero of John Brown, was due to the belief that these northern fanatics meant to deliver the wives and children of the slave-holders to all the horrors of a slave rebellion. How groundless this fear was, was amply demonstrated by the Civil War, when the plantation families were at the mercy of their slaves who very rarely abused their power. I have been surprised to learn from my Father's letters how strong and widespread among his Kentucky friends was the antislavery sentiment; their difficulty was to know how to rid themselves of the hateful thing—like the man who had the wolf by the ears, they didn't dare let go.

In 1857 my Father accepted a call to the Seventh Presbyterian Church in Cincinnati and there I was born on February 12, 1858. My Mother often told how she amused part of her enforced leisure, when recovering from her confinement, by reading the long newspaper accounts of the wedding of the Princess Royal of England and the Crown Prince of Prussia. Happily, she was spared the knowledge of the frightful issues to which that marriage was to lead. In 1859, my Father became a professor in the Northwestern Theological Seminary in Chicago (now called the McCormick Seminary). I retain a long series of the clearest and most vivid memory pictures of our life in Chicago, but they are isolated and do not form a connected series. Strange to say, I remember nothing of the outbreak of the Civil War, or of the battle of Bull Run, which caused such excitement and consternation throughout the North, though the visit of a soldier uncle, which I well remember, must have been connected with the beginning of the war.

Despite his splendid physique, my Father's health began to fail and by the summer of 1861 it became evident that he had not long to live, and he went home to Princeton to die. Of that sorrowful October pilgrimage I can remember our stops in Pittsburgh and Philadelphia, but little of the journey itself, save the ending of it. I still seem to see the ferryboat that took us across the Delaware to Camden, the starry night and the broad river in nocturnal mystery. It was late when, at length, we reached Princeton and drove up Canal (now Alexander) Street in one of the lumbering coaches, known as "hacks," which used to ply between the station on the canal and the town. How well I remember

the drive in the dark "hack" and our arrival at my Grandfather's house, where I can see my small figure swaggering about the study and occupying the centre of the stage.

The house which was, for so many years, to be my dearly loved home, stands on the west side of the old Seminary building (Alexander Hall). My Grandfather built it in 1824 and there all of his children, except the oldest, Archibald Alexander Hodge, were born. Before our arrival he had sold the house and much of his land to the Seminary and the remainder of the land to neighbours, who built their houses on these lots. In 1861 and for many years after that, a considerable area of land was attached to the house, much more than at present. The yard in front of the house is but little changed, but there was an equally large yard behind and beyond that a very extensive vegetable garden. The woodshed, the poultry yard, the stable and cow barn were long ago removed, but, with the yards, they made a royal playground for us boys.

It is time to say something of my beloved Mother and her family, which counted so enormously in my development. She was the oldest daughter and second child (there were eight children, five sons and three daughters) of Charles Hodge and Sarah Bache. My Grandfather (1797-1878), whom I held in a love and reverence that are quite impossible to describe, was the son of Dr. Hugh Hodge, of Philadelphia, a surgeon in Washington's army, and of "the beautiful Miss Blanchard of Boston." The only other surviving child of that marriage was an elder brother, Dr. Hugh Lenox Hodge, a very eminent physician and a professor in the University of Pennsylvania. My Grandfather was for fifty-six years (1822-1878) a professor in Princeton Theological Seminary and was one of the most distinguished and influential of American theologians. He was often called "the Presbyterian Pope," by some in admiration, by others in derision, of his Calvinistic opinions. It is one of my highest privileges that, for seventeen years, I was permitted to live in the closest association with him, for, after my Father's death in December 1861, my Mother returned to her father's house with her three boys.

The Grandmother that I never knew, for she died in 1849, was Sarah Bache, a great-granddaughter of Benjamin Franklin, who is thus my Great-great-great-grandfather. This is, to be sure, a rather attenuated relationship, yet it has frequently proved of real importance to me. My Grandmother's mother was Catherine Wistar, whose brother, Caspar Wistar, was one of the most famous of American anatomists and, in point of time, the first of American vertebrate palaeontologists. Dr.

Wistar was a professor in the University of Pennsylvania and, for many years, president of the American Philosophical Society. It was usual for members of the Society, after the meetings, to hold social gatherings at Dr. Wistar's house and, after his death, the gatherings continued to be held, under the name of the "Wistar Parties," a custom still in full force after the lapse of more than a century and the cards of invitation still bear the name and bewigged head of the great anatomist. Any guests may be invited, but the host must be a member of the American Philosophical Society.

Before we came back to Princeton, my Grandfather had married again and his second wife was a widow, Mrs. Samuel W. Stockton, with a son and daughter. She was the daughter of the Rev. Andrew Hunter, professor of mathematics in the U. S. Navy, and Mary Stockton of Morven, as the Stockton house in Princeton, built in 1701, has been called since the middle of the eighteenth century. This was the only Grandmother I ever knew and she was so loving and tender that I never felt the difference and loved her deeply in return.

My Grandmother, as I shall call her hereafter, was born in 1807, when her mother, who had married late in life, was nearly fifty years old. Mrs. Hunter's memories thus ran far back into Colonial times. My Grandmother used to tell us many stories of famous people in Colonial and Revolutionary days and I have never forgiven myself for failing to collect and record these authentic tales, which she would tell us with incomparable fun and spirit. I may record here two or three of such of these stories as I remember, which deal with people of historic interest. They are all concerned with my Grandmother's Aunt Cuthbert, her mother's twin sister Susan, whose nickname of "Devil Sukey" is sufficient proof that she was no meek and tame maiden.

When Governor William Franklin, the last royal governor of New Jersey, was coming to spend a day at Morven, there was a great bustle to prepare a fitting reception for His Majesty's representative and the children were all sent upstairs to be out of the way, but Sukey was determined to see the fun. Watching for an unobserved moment, she slipped into the kitchen and plunged her head into a bowl of molasses and then into a bag of feathers. Having thus tarred and feathered herself, she took post on the turn of the staircase and peeped over the bannisters where the Governor, who knew her well, would be sure to see her. The stratagem succeeded perfectly; Governor Franklin called her down and, though heartily laughed at, she gained her point, as she usually did.

When the twin sisters had completed their twenty-fifth year, which was during the Revolutionary War, a party was given at Morven in celebration of the birthday, and Colonel Aaron Burr was one of the guests. When the festivities were at their height, a great roaring and clanking of chains was heard in the cellar and Colonel Burr, drawing his sword, boldly descended to investigate. After a time he returned and reported that the disturbance had proceeded from the Devil, who had come to seal the sisters as old maids, as they were twenty-five and unmarried. Burr had argued the point with Satan, who was disposed to be reasonable and had agreed that, in view of the war and the scarcity of eligible young men, he would give the hapless maids five years more.

The last of my yarns refers to the time shortly after the close of the war, when Aunt Cuthbert had married and was equally renowned for the plainness of her countenance and the keenness of her wit. A great banquet was given in Philadelphia, which was attended by several famous beauties and Mrs. Cuthbert, who was no beauty. An officer, name unknown, either from dullness or malice, threw an apple of discord into the company by proposing a toast to the fairest lady present. This led to an embarrassed silence, for no one dared to accept the honour. Finally, Aunt Cuthbert rose to her feet, curtsied profoundly and said: "Thank you, General!" She sat down amid great applause, having saved the situation.

Because of his connection with the Navy, my Grandmother's father lived in Washington and was there during the War of 1812. The dear old lady remembered very distinctly the flight of the family before the invading British in 1814. Her father feared capture as a naval officer and took the children away in a two-wheeled cart, but her mother remained behind to face the "insolent foe" and was none the worse for the experience. Some of her letters remain to tell of the courteous treatment the British officers gave her. My Grandmother's oldest brother, Richard, was a midshipman on the U. S. S. *Adams,* which, to escape capture by the British cruisers, took refuge in one of the Maine rivers and was there burned. One of my Grandmother's favourite stories was an account of the long and toilsome march of the officers and crew of the *Adams* through the Maine woods after their ship had been destroyed.

Two of my Grandmother's brothers were living in my time, Dr. Lewis Hunter, of the Navy, lived in Philadelphia and the other, Major General David Hunter, in Washington; I often visited at their houses. Both of these "uncles," by courtesy, were very kind to me and I hold their memory in a sincere affection.

My beloved Mother was a remarkable woman and to her I owe far more than I can express. Of unusual intellectual capacity, she was especially wonderful for her sustained powers of tireless labour, whether with brain or hands. Self-forgetting, self-sacrificing in a most exceptional degree, she gave up everything for her children. She was widely read, a good talker and excellent company, though saddened by her early widowhood. Because of her shyness, few people knew her at all well, but those who did admired and loved her. Three of my uncles and both of my aunts were really brilliant and witty people and were extremely popular in the community, so that the family into which my Father's death transplanted me afforded a most stimulating atmosphere for a child's development.

From January 1862 to July 1863, we lived with my Mother's widowed brother, Caspar Wistar Hodge, who was professor of Greek and New Testament Literature in the Seminary. Of those eighteen months, I cherish a great many recollections, but could hardly give a connected narrative, even were it worth while to do so. One of my most vivid recollections of that period was the military funeral of General George Dashiell Bayard, whose obelisk with its crossed sabres is still one of the most conspicuous monuments in the Princeton cemetery. General Bayard, a distant cousin, was killed at the battle of Fredericksburg in December 1862 and brought to Princeton for burial. His body lay in state in what is now Ivy Hall and was escorted to the cemetery by infantry and cavalry, to my childish eyes a very large detachment. The volleys over the grave were fired by infantrymen in long, blue overcoats and high hats of black felt. The housemaid took me to see the spectacle and my Mother was left alone in the house, till my Grandmother came and made her attend the funeral. This, perhaps, saved her life, for the house was robbed that afternoon and nearly all my uncle's silver taken, including a much valued eighteenth century bowl which had been buried during the Revolution to save it from marauding Red Coats, when Lord Cornwallis's troops occupied Princeton and Morven was taken for his headquarters.

It is really surprising how vividly the events of that day, more than seventy-five years ago, are present to my memory; the frightened housemaid's breathless announcement that the silver was gone, the search through the house and in the cellar, the finding of the sugar bowl, minus its cover, hidden in a closet, with the burglar's fingerprints in the soft sugar, and the disappearance of my oldest brother's best trousers. In nameless terror I clung to my Mother's skirts. Another crime, which

occurred not long after our burglary and which also terrified us boys, was Princeton's only murder of which I ever heard. The victim, a jeweller named Rowan, was killed from behind by blows of a club, the body rifled of its keys and thrown over the brick wall which then enclosed the cemetery on the Witherspoon Street side. The murderer, a desperado from California, named Lewis, was caught in a few days and taken to Trenton, where he was tried, convicted, and hanged. For my brother Lenox and myself, the fear of Lewis, dead and buried, made night hideous. In his *Memories of a Soldier,* my brother has recorded the emotions which these crimes aroused in him.

I find it hard to say much about the Civil War, for, until near its end, I can remember but few of its events. What I do remember, was the steady, unrelenting pressure, of the sense of a vast and unending calamity. Among our friends and acquaintances almost every family lived in deadly anxiety for some loved member in the Army or Navy, or already mourned his loss. It was, I think, in 1864 that I had a dream that the war was over and that peace had come. The sense of joyous release and happiness brought by the dream, and the redescending of the black pall when I again awoke to realities have taught me what the war meant to a little child who dwelt in entire security among his own people.

I wish I might be able to give some adequate conception of the beautiful and stimulating family life in my Grandfather's house. The youngest son, Francis Blanchard Hodge, was in his last year at the Theological Seminary and two of my Grandfather's nephews, William and Edward Hodge of Philadelphia, were also in the Seminary and had their rooms there, but took their meals with us. Richard Hunter, my Grandmother's nephew, was in college (Class of '64) but lived in our house. My Aunts Katherine (always called "Kitty") and Sarah, young women in their early twenties, my Mother and her three boys completed a (mid-day) dinner table, at which sat seldom less than fourteen or fifteen people and often more.

It is easy enough to enumerate the factors that made up the family life, what I cannot do is to restore the all-pervading atmosphere of the house. A sincere, profound and vital religion was the inspiration of it all, but, aside from the morning and evening family prayers, religion was never intruded, rarely talked about, but always subconsciously felt. The most unrestrained jollity and fun, wit and repartee, good-natured banter, were perpetually going, but there was never any quarrelling, gossip, or ill-natured talk, or detraction of any one. The war, politics,

science and its discoveries, books and music were the subjects of conversation, but there was nothing in the least pedantic or "high-brow" in the brilliant talk, for brilliant it assuredly was. We did very little formal entertaining, but simple evening parties were many and the house was frequented by what seems to me, in retrospect, an unending stream of callers.

It is the fashion nowadays to decry the Calvinistic theology and to paint its professors as gloomy and austere fanatics. Whatever may be true of other communities, I can truthfully say that never, in any part of the world, have I met such sunny, genial, kindly and tolerant people as my Grandfather and his children. He stands in my memory as the ideal of a perfect saint and gentleman, in whom I could see no flaw. The whole community revered and honoured him, but I can give no conception of the position which he held, or of the selfless, unconscious way in which he held it. He never talked of himself, save to tell of some experience which he had had. From 1827 to 1829, he had spent two years as a student in Germany, chiefly in Berlin, which was in the days of the stagecoach and the sailing ship and only twelve years after Waterloo. From his inexhaustible store of memories, he would often tell us something that had especially appealed to him.

In his *Memories,* my brother, Major General H. L. Scott, bears under the same testimony as to the nature of the home that we shared. Until he left it and learned otherwise, he took it for granted and supposed that every educated household was like that. When he went to school at Lawrenceville, he would often climb out of his bedroom window at night, walk the five miles to Princeton, visit the dogs and horses, peep through the windows of the house and then go sadly back to school. None of the family knew of the escapades of the homesick boy and I first learned of them from reading his book.

I am not sure that that, perhaps, overstimulating life was altogether good for me. I have often imagined, at least, that I have had to pay dear in later life for the joys and advantages of those early days. My Mother's chief preoccupation was to keep her boys from being an annoyance to her father and stepmother. So she did what was in her power to repress us and make us silent and invisible. It is rather a curious coincidence that my wife and I should both have had the same sort of experience, of growing up in our grandfathers' houses because of the early loss of our fathers and of the way in which our mothers repressed us, lest we become nuisances to the old people.

My older brothers had sense enough to give little trouble, but I must have been a source of great vexation to my long-suffering Mother. Being the only child of the family then in Princeton, all the older people petted and spoiled me and, at the same time, I was unmercifully teased. As a result, I became pert, conceited, and subject to violent storms of rage, when I seemed to go almost out of my mind. Happily I outgrew that violence of temper; the conceit was pretty well knocked out of me by my encounters with the world, but I have never entirely overcome the peculiar and conflicting influences of my childhood. It was not well for me that I was so lonely, for I had no playmates till I went to school. True, it had the advantage of driving me to books and making me an omnivorous reader, but the sense of loneliness remained and had permanent ill effects. The soft sighing of the wind in the group of white pines behind the house, the blazing glories of the sunset sky used to fill me with a solemn joy that was painful for lack of expression. I used to walk up and down, gazing at the sunset and praying aloud, as the only vent I could find for my overstrained emotions.

My grandparents lived in a very simple, but entirely comfortable fashion. Once a week, or so, the afternoon drive was to my Grandfather's farm near Kingston, for a supply of butter and eggs. The sedate bay mares, Dolly and Phoebe, were harnessed to a heavy, lumbering coach and my usual place was beside the driver. There had been an elaborate poultry-yard near the house, but the minks, to my mind mysterious and terrible beasts of prey, had forced the abandonment of it. One or two milch cows were brought in from the farm which, together with the large vegetable garden, supplied the table, so that groceries, some fruit, meat, fish, and oysters were the only things purchased. Bread was always made in the house and our butcher came from Trenton; considering the state of the roads at that time, one wonders how he found any profit in doing it.

The contrast between my mode of life and that of my brother Lenox was so great, that it seems hardly possible, in retrospect, that we should have lived under the same roof. Sometimes I was permitted to join in his campaigns against the Indians, or in his big-game hunts, but my action was perfunctory, for my heart was little in such matters.

CHAPTER TWO

PRINCETON IN THE 'SIXTIES

IN the decade 1860-1870, Princeton changed hardly at all; it was already a stately and beautiful place, though it had little enough to boast of in the way of architectural merit. The college was very hard hit by the Civil War, for a large proportion of its students were Southerners and of these it lost two hundred or more in 1861. Dr. John de Witt, so long a trustee of the University, has given me a very interesting account of the way in which the Southern students gradually left, as their various states seceded from the Union and of the friendly manner in which they parted from their Northern comrades. Materially, the college was a small place. Nassau Hall was, externally, precisely as it is today, but was very different internally, being in use as a dormitory and what is now the Faculty room was then the library. Stanhope Hall, which now houses the treasurer's and comptroller's offices, then contained classrooms and disgraceful affairs they were—small, dark and ill-swept. An exactly similar building, known as Philosophical Hall, occupied the corresponding site at the east end of Nassau and contained the zoological museum and the departments of physics and chemistry. The Chancellor Green Library now stands on the site. South of Philosophical Hall was the "Old Chapel," a pretty little building, which a Princeton novel of that period described as "a beautiful smile on a plain face." East College, which, with the Old Chapel, was torn down in 1896 to make room for the library stack, was the counterpart of West; both of them more severely simple than West is now.

The quadrangle was completed on the south side by Whig and Clio Halls, which were of Ionic style, like their successors, but smaller and built of stuccoed brick and with wooden columns. The President's house was the one originally built for that purpose in 1756 and now assigned to the Dean of the Faculty. The addition of the front veranda and the two bay windows are the only outward changes which the charming old house has undergone. A house quite like that of the President was

symmetrically placed on the east side of the campus and there was another professor's house, which stood on the site of Reunion, made famous as the house of the eminent physicist, Joseph Henry. In 1870, this house was torn down and rebuilt where the west front of the new Chapel now stands, and was moved bodily to its present site in 1926. Since President Wilson's time it has been the official dwelling of the Dean of the College. Still another professor's house was demolished in 1882 to make room for the Marquand Chapel, which, in its turn, was burned down in 1920.

The campus was bounded on the east by the driveway between the Library and the new Chapel, which is still, legally, a public street, as is also the continuation of William Street, which runs from Washington Road to the Library. The block so formed was solidly built up, with dwelling houses on all four sides. On the south side, the campus ended immediately behind Whig and Clio Halls, though on the west side was a large, almost vacant field, where there was a baseball diamond, a brick handball alley, and a frame structure, the gymnasium. The latter I do not remember at all, for it was burned down before I was big enough to go exploring on my own account. This field did not extend to Nassau Street from which it was cut off by a continuous line of houses and their deep gardens, but the open space extended to the backs of the houses on Canal (now Alexander) Street, for there was then no University Place.

All of the northeastern and eastern parts of the town, Vandeventer Avenue and the adjoining streets, as well as Prospect Avenue, Broadmead, etc., date from a later time, as do also the streets in the northwest, which were laid out in the old Morven property. Bayard Lane was a narrow, country lane, with only three or four houses on it; Chambers Street and Greenholm were still in the womb of the future, but the maze of little streets between Witherspoon Street and John's Alley were, if anything, worse than they were at the time of their demolition in the creation of Palmer Square in the late 'thirties of the present century.

The Theological Seminary was, in outward appearance, but little different from what it is now. The "Old Seminary" (now Alexander Hall) contained the lecture rooms and served as a dormitory also. The Chapel, the Lenox Library and the Refectory (now a gymnasium) were the only masonry buildings of my earliest recollections, though Brown Hall was put up in 1863 or 1864, taking the first large slice out of my Grandfather's garden, of which nothing remains today. There were also two frame buildings, long since vanished, which bounded much of the

garden on the east side. One was a dreary barn-like place, with dirt floor, which was fitted up as a gymnasium, though I never saw anybody try to use it. The other, Langdonic Hall, was a much more cheerful place, well floored with hard wood and brightly lighted by large windows. Nobody, except regularly organized baseball clubs, had any special clothing for exercise; one simply took off one's coat and "pitched in"; nor was the preparation always as elaborate as that. I can distinctly remember one Seminary student, who was a wonderful kicker at football and always played in a long-tailed clerical coat. Because of its freedom from furniture and stationary apparatus, Langdonic Hall was in great demand for church fairs, "strawberry festivals" and the like.

I spoke just now of the football game which the Seminary students played; it was unlike every other form of the game known to me and was so arranged that even very little boys could safely take part in it, as I did constantly. The field of play was the ground between the Old Seminary and the Refectory, and the goals were, respectively, the Refectory wall and the road on the south side of the old Seminary; thus, the goal line ran the whole width of the field. Parallel with the goal and thirty or forty feet in front of it, was another line which no opposing player could cross, and the ball had to be kicked from outside of this forbidden area to cross or strike the goal. Within the shelter of "the line," small boys could act as goal keepers and several of us did so quite regularly; once or twice, I was granted the signal honour of being allowed to kick the ball out. The ball itself was of rubber, with a cover of leather, like a Rugby football, except that it was spherical, not egg-shaped. No particular number constituted a side, but the sides were kept as nearly equal as might be.

The sanitary arrangements of both College and Seminary were incredibly and disgracefully bad. Bathing facilities there were none, save the portable tin tub, which each man was at liberty to get for himself. There was no system of sewers or water supply in the town; each house had its own cesspool and its own well or cistern. There was no central heating plant in either institution and the Seminary students laid in great supplies of hickory and oak, which were stacked in a labyrinth of high piles of cordwood, and many men got their exercise by sawing and splitting their firewood; in College, anthracite coal was burned in stoves and grates.

It is surprising that I should have known so little of the College in those days, notwithstanding the fact that my oldest brother, Charles, was a student from 1864 to 1868; but it was an immense distance away, nearly

half a mile, and I never went there. The students must have been a rather disorderly lot, distinctly inferior in manners and behaviour to their modern successors. A much dreaded custom was the "horn spree," a sort of riot when much damage to property and some violence to persons were accompanied by a furious blowing of tin horns. A horn spree was always followed by a crop of expulsions and became extinct long ago, though the memory lingered into my undergraduate days. Another vanished custom, which long ago died an unregretted death, was the "Rake," a fat pamphlet of satirical and more or less vulgar, even obscene stuff. Copies of this clandestine publication were thrown through the open windows of the First Church on the night of the Junior Orations.

Nassau Street was lined with low, chiefly two-storied brick buildings, mostly dating from the eighteenth century and much resembling Bainbridge House in character; nearly all of these have been remodeled or torn down. The shops were very unpretending and there was not a delivery wagon in the place; the grocers used to deliver their orders per wheelbarrows of one darky-power, which gave great amusement to visitors. A long, low market-house occupied the middle of Nassau Street in front of the present site of the Chapel, but, even in my earliest recollections, it was mostly vacant; it fell into decay and was removed.

The administration of the Borough appears in my memory to have been of the slackest and most inefficient sort. There was almost no crime, but the sight of drunken men unmolested on the streets was very common. One fact, which I well remember, seems altogether incredible at the present day: an insane old negress, known as "Crazy Dorcas," used to parade the streets, clad only in a carpet apron, that covered her from waist to knee. She was entirely harmless and spoke to no one and the object of her expeditions seemed to be the gathering of cigar-stumps. From the modern point of view, it seems utterly inexplicable that so pitiful a personage should have been so neglected.

The streets of the Borough, too, were anything but creditable to the corporation and people. The roadways were of the "dirt" variety and, when the frost was coming out of the ground in spring, they became unspeakable bogs and wagons were sometimes mired down in our streets. At irregular intervals, the streets and roads were mended with the hard, dark, local stone, broken into pieces as large as one's hand. One of these mended stretches was carefully avoided by all drivers, until the stones gradually sank into the abyss. The country roads, in our part of New Jersey, were no better and the astonishing change, which in the

last twenty-five years, has covered the whole country with a network of fine roads, amounts to a veritable revolution. The first real improvement of Princeton streets was the macadamizing of part of Nassau Street in 1880, and the conservatives were loud in their denunciation of this waste of the taxpayer's money. The sidewalks were of brick or of irregular and rough slabs of local stone. It used to be said that the Princeton ladies acquired from these rough walks a gait like that of high-stepping trotters; but this, I feel sure, was a calumny.

Street lighting was in a very primitive state; what there was of it came from widely spaced and feeble gas lamps, which functioned only in the dark of the moon. "Corporation moonlight" was a phrase not invented in Princeton, but it was very applicable and often used. Needless to say, some of the darkest nights occurred when the moon was supposed to be shining according to the almanac. As late as 1884, I had sometimes to feel my way home by walls and fences on nights so dark that one could not see the trees against the sky overhead. The fire department was, as it still is, a volunteer organization, but far less efficient than today, for the equipment was very archaic, hand-engines and hose-carts, and, of course, there was no alarm system.

There was no public water supply or sewers, as I have already mentioned. The terrible epidemic of typhoid fever in 1880 was required to awaken the community to the necessity of pure drinking water. My Grandfather's house, when we first went to it, was entirely without bathrooms, or plumbing of any sort, a deficiency which was not supplied till 1862 or '63, when the addition on the west side of the house was put up. Our system, when plumbing was finally installed, consisted of a rainwater tank above the only bathroom and this tank was kept full, in dry weather, by laborious hand-pumping from a cistern, also of rainwater, mostly from the roof of the Seminary.

The heating arrangements were equally primitive, but more satisfactory in result. There was no furnace, but a large "base-burner" stove stood in the front hall and its pipe led up through the staircase well to the attic, where it entered the chimney, and, in this fashion, warmed the halls and stairs very comfortably. In addition, every occupied room had its open fire, or stove, some of anthracite coal, but mostly of wood. The winter's woodpile was a portentous structure and the woodshed a very important factor in the household economy. The house was comfortably warmed, but at the cost of an immense amount of labour.

What gave the Princeton of those days its especial character was the number of fine and stately old houses, some of them dating back to

Colonial days. Chief of these in dignity and historic interest was "Morven," the Stockton house, built in 1701, and named in the middle of the eighteenth century by Mrs. Richard Stockton who was a great admirer of Ossian. Though the house is now but little changed from the time of which I am writing, it had a different setting and stood in much more spacious grounds, for the ill-starred first Princeton Inn, now Miss Fine's School, and the Battle Monument had not been built and the many new streets and roads, which have been cut through the Morven lands, were not yet in existence. From Bayard Lane to Elm Street the only nick in the property was at the southwest corner, where stood the house of Paul Tulane, founder of the Tulane University in New Orleans, the home of the late Mr. George Armour. Morven was then in the hands of Commodore Robert F. Stockton, a naval officer and public man of considerable distinction and, at one time, U.S. Senator from New Jersey, altogether an Olympian and awful personage to my childish mind. He died in 1866.

Professor Marquand's place then belonged to Judge Field and was the show place of the town, for the large grounds were beautifully kept and were filled with fine exotic trees and shrubs. "Prospect," then a private residence, belonged to Mrs. Potter and was not bought by the University till 1879. The house and grounds of Thomson Hall, which Mrs. Swann bequeathed to the Borough, was another very ornamental place; the house was built by U.S. Senator J. R. Thomson, who died shortly after we came to Princeton. The Cleveland house was built by Commodore Stockton for his daughter, and the late Henry van Dyke's house then belonged to Mr. Frank Conover, a retired naval officer. Those large places were, for the most part, well kept up and they were the scene of much hospitality, though of this I, naturally, had no direct knowledge.

Except for these large and stately places, the lawns and grass-plots were kept in a very slovenly way. Our front yard and the Seminary campus were mowed with the scythe once or twice a summer, when the grass had grown knee-high, though, after the introduction of croquet, mowing was more frequent. Nothing has done so much to improve the appearance of small towns as the introduction of the lawn mower.

Sleighing and skating played a much larger part in our lives than they do now, when the former amusement is almost extinct; every well-to-do family had at least one sleigh. Though the weather records do not support the prevalent notion of a climatic change, in retrospect the winters of the '60's seem to have been much more snowy. Even in the large cities no attempt was made to remove snow from the streets, except, of course,

the sidewalks. For skating, there were "Vandeventer's ponds," which filled the little valley from the gas-house to Moore Street. At intervals, there would be a gala night, with a brass band and a flaming tar-barrel, and every one, not physically incapacitated, skated frequently, even daily. Old ladies didn't skate, for that would have been "unladylike" and, in those days, woman seemed to hurry into old age, putting on lace caps and refraining from exercise. Every one else, from little children to old men, was on the ice as often as possible.

One of the principal differences from modern times was the paucity of public entertainments and amusements of every kind. Concerts were rare and what music we had was almost entirely due to amateurs. The only room for public purposes of all sorts was Mercer Hall, now, I believe, a Masonic lodge. Several times, I was taken there to see conjurors, my favourite diversion. The forerunner of the moving pictures was the stereopticon and a man named Cromwell, at a period a little later than the one of which I am writing, came frequently to Princeton with really beautiful views of European countries, from which I acquired a wish to see Europe, which became an obsession with me, as it was with my Mother.

Baseball early became a passion with me and, when I couldn't play, I loved to watch the game. "Greenholm" was, until comparatively lately, a large open field, which was used as the College baseball field. The first game I saw there must have been in 1867 and was with the "Atlantics" of Brooklyn, then one of the leading professional nines of the country. Essentially, the game was then what it is today, but there were many differences of detail. The most important one was that the pitcher had really to "pitch" the ball; i.e. deliver it with a straight-armed, swinging motion and, at the moment of delivery, the hand had to be below the waist. This precluded the possibility of any great speed in pitching. Another very important difference was the use of the "lively" ball, which had a larger rubber core than the ball now in use. Those two features made the hitting much harder and more frequent and scores of 60 runs and over were, by no means, uncommon. The modern development of the game, not in all respects an improvement, has been dominated by the professional management in its desire to shorten the game as a spectacle and thus make a larger attendance possible. At the time of which I speak, the fielding was not nearly so good as it is now and no account of errors was kept by the scorers. In part, this deficiency was due to the harder hitting, but chiefly to the lack of all the present-day fielder's defensive armour. The playing was all barehanded; gloves,

masks, leg-guards, etc., etc., were inventions of a later day and substantial improvements, for they greatly diminished the injuries suffered by the players. In those days a baseball player's hands, in almost every case, were an unpleasant sight, with their broken and dislocated fingers.

The railroad line between New York and Philadelphia was then part of the Camden and Amboy system, which in 1872 was leased by the Pennsylvania. Still only a single track, it ran along the south bank of the canal and the passing point for passenger trains was at Princeton Basin. The engines burned wood and the tender looked like a box-car; the smokestack was a huge, funnel-shaped affair, three feet or more in diameter at the top. The first coal-burners, with their narrow cylindrical stacks, began to come into use about 1863. The speed of "express" trains was twenty miles an hour, making the time between New York and Philadelphia four and one-half hours. In 1864 the line was relocated in its present position and double-tracked, which made necessary the building of the Princeton branch. Like most things that the Camden and Amboy did, all this work was done in the cheapest possible way and innumerable were the witticisms at the expense of our branch. The service was by means of two "dummies," cars driven by their own steam engines, which were vertical and condensing, so that they were noiseless, whence the name dummy.

The Princeton station was nearly on the spot where the one abandoned in 1917 stood and was a dark, wretched, barn-like frame structure. Outside, on the top of a high post, was a large bell, which was loudly rung five minutes before the departure of a dummy. The station at the Junction was also a barn-like frame building, with high wooden bridge over the tracks. In one respect, however, this primitive station was much better than its modern successor and that was in having high platforms, on a level with the car-floors, an English fashion, to which our railroads are slowly returning. The word station, by the way, was seldom heard in those days, depot (pronounced *deepo*) being universally used. To make the new station accessible, a new street, Railroad Avenue, now University Place, was opened, but was much shorter than at present.

Another marked difference from the Princeton of modern times was to be found in the large representation of handicrafts, most of which were more or less directly connected with horses. There were carriage-builders, wheelwrights, blacksmiths, saddlers and harness-makers; the plumbers were also tinsmiths and made up quantities of tinware. Several shoemakers made shoes to measure; the ready-made article was unsatisfactory. The disappearance of those skilled artisans is a serious

loss. Nowadays, almost everything is factory-made and the craftsman does only repair work.

This account of the Princeton sixty or seventy years ago seems to indicate very primitive and backward conditions and might easily mislead one into thinking that the little town was then far less civilized than it really was. It must be remembered that, throughout the United States, except in New England, city and town government was thoroughly disgraceful. The paving and cleaning of the large cities was unspeakably bad and Princeton was backward, just as the whole country was backward. It is a truism to say that what really counts in a community is its men and women and, in that respect, Princeton need not have feared comparison with any other place, American or European.

CHAPTER THREE

SCHOOL DAYS

AFTER living eighteen months with my Uncle Wistar, we returned to my Grandfather's house in the summer of 1863 and there my Mother and I remained till the end of my Grandfather's life in 1878. The year 1863 was memorable to me, not because of Gettysburg and Vicksburg, of which I took no account, but because my hated curls were cut off and I was promoted to trousers. From my Mother I had already learned to read and had become an omnivorous reader, who read anything and everything within his range of comprehension. *The Swiss Family Robinson* was my favourite and great was my wrath with any one who called it fiction, or who ventured to question its accuracy in all respects. With 1864 my memories become more continuously connected and, were it desirable, I could make out a fairly complete narrative.

Early in the year, my Mother took her two younger boys on a long visit to my Uncle Frank, who was pastor of the church in Oxford, Pa. Though Oxford is only six miles from the Maryland line, the weather was bitterly cold. The old farm house in which my uncle lived was a nice brick structure, but had no modern conveniences, not even so much as a bathroom or a furnace, but we boys did not mind such deficiencies and greatly enjoyed our visit of several weeks. My sixth birthday was celebrated by my first and only birthday party, for in our family not much account was taken of birthdays and that party was a notable landmark. In the summer of the same year I had my first sight of the sea. My Grandfather's brother, "Uncle Doctor," had taken a cottage at Cape May, to which he invited my Mother and her sons for a fortnight's visit. Then began a love for all things marine, which time has only intensified.

The presidential campaign of 1864 between McClellan and Lincoln is also a distinct memory, with its parades and processions, political meetings and general excitement. I had an American flag on which were printed the names of Lincoln and Johnson and I can still vividly

see a Democratic cousin, of my own age, snatching it from my hand and trampling it under foot in a paroxysm of rage. This performance greatly amused the family, despite their stanch adherence to Lincoln.

Of 1865, of course, the ending of the Civil War and the assassination of Lincoln were the outstanding facts. Partly because I was growing older and also because of the profound impression produced upon those around me, these events have remained most clearly in my memory. I still can see the band of Seminary students who gathered before my Grandfather's study door to sing, not jubilantly or triumphantly, but in solemn thankfulness, when the news of Lee's surrender arrived. These glad tidings were speedily followed by the account of the President's assassination, which caused the greatest grief and consternation in the family and our house, like almost every other building in Princeton, was draped in black. Wilkes Booth immediately became a figure of dread in my imagination and in my dreams.

By this time the family had been much reduced in number; the cousins and uncles had finished their studies and left us. The daily routine of the household went on with very little change from year to year and that is the principal reason why I find it difficult to place many events according to their dates. My Grandfather came downstairs in his dressing gown, shaved and put on his voluminous white tie in the study; then followed prayers and breakfast. At eleven o'clock, he went to his lecture, always accompanied by "Tip," a remarkably intelligent, little black-and-tan terrier, brought from South Carolina by Uncle David Hunter. Tip, who was known to the students as "Schleiermacher," was a very important member of the family and displayed remarkable intelligence and he knew the eleven o'clock bell as well as any one and before my Grandfather made any move to obey the summons, Tip was all excitement and insisted that his master should start immediately.

When the eleven o'clock bell began to ring, my Grandfather would put on the coat which he wore for the remainder of the day. Nearly all the elderly gentlemen of that time wore a "swallowtail," entirely like the modern dress coat; black broadcloth was the unchanging material from year to year. Like almost every one else in Princeton, we dined at 1:30 and had "tea," or supper, at 6:30. Evening prayers at ten o'clock ended the day and then my grandparents went to bed, though the other members of the family did as they pleased about that. Sundays were dismal to us boys, however the "grown-ups" may have felt. In term-time we went to the Seminary chapel, in vacation to the First Church, and, for me, there was Sunday School and when I grew old enough, evening

church at 7:30. As if all this were insufficient, Mother used to put us through the Shorter Catechism in the afternoon. For the servants' sake, cooking was reduced to a minimum and we always had cold meat, never soup, at dinner.

Other relics of Puritanism were to be found in the disapproval of the theatre, of card-playing and of "round" dances. I cannot remember any talk of the theatre in my Grandfather's house, though I somehow gained the impression that the *Black Crook* was an indecent show. At all events, for us, the question was purely academic, for there were no theatres within reach. Card-playing my Grandmother greatly disliked, because, as she was careful to explain, gambling had grown to such proportions among women in her younger days, that a great reaction against cards had been the result.

I have mentioned the servants, for whose Sabbatical rest such pains were taken. At that period they were nearly all Irish and were devoted and loyal friends of the family. In a considerable family, three maids, cook, waitress and chambermaid were regarded as the minimum. In addition we had Pat, the coachman-gardner. Negro servants were then few in the North and I had a feeling, whence gained I don't know, that they were not quite "the thing," though it was permissible to have a black butler.

In 1866 Uncle Sam Stockton, the son of my step-grandmother, resigned his captaincy in the 4th U.S. Cavalry, in which regiment he had gone through the whole Civil War. He was the hero and idol of us boys, though similarity of tastes and pursuits made the bond with my brother Lenox, also destined for a soldier's career, especially close. In that same year he married his stepsister, my Grandfather's youngest daughter, my beloved Aunt Sarah. Commodore Stockton, who died a week after the wedding, left his affairs in great confusion and, in satisfaction of my Uncle's claim upon the estate, Morven was transferred to him. This settlement was not made for some years and involved certain friendly lawsuits, the nature of which I do not know. My Uncle and Aunt moved into the house and, thenceforward, Morven was my second home and for eight years after my return from Germany (1880-1888) my only home.

I first went to school in the fall of 1867; before that, my Mother had been my teacher. Living in a clerical family, I, of course, looked forward to entering the ministry myself. I had arranged a study in the attic with a packing case for a desk and there I had daily sessions with an old book of Bible stories, which I called and sincerely believed to be "studying

theology." Each story had a heading in black letter, which I supposed to be German and thought I was making rapid progress in that language. Yet, in spite of my theological studies, the real, though as yet largely unconscious, bent of my mind was toward science, an interest which manifested itself at every opportunity. My first lesson in geology, which I still vividly remember, came from my Grandfather, who took the keenest interest in all scientific discoveries. Not far from where we were standing, a wagon was unloading coal and he said to me: "Do you know what that is?" "Why! yes; it's coal." "No; it's wood," was the puzzling rejoinder. The old gentleman made no attempt to explain the paradox, which long continued to bewilder me, but he planted a seed which in after years bore fruit.

My first school was kept by Mr. John Schenck in the basement of the old Methodist church. Mr. Schenck told my Mother that he would take me on trial, but he hardly believed that I was prepared to enter his lowest class, which was beginning Latin—but a week's probation sufficed to show that I could go on. The epoch-making news that I was actually to begin Latin was too solemn an affair to be communicated orally and so I sent the great tidings to my Mother in a note, much to her mystification, for she couldn't imagine why I should write what I might as well have told.

My Great-aunt Margaret, wife of my Grandfather's only brother, Dr. Hugh Lenox Hodge, died in the late fall of 1867 and, taking me with her, my Mother went to Philadelphia for a time, to keep house for "Uncle Doctor" and Cousin Len, the son who lived with him and was himself an eminent surgeon and a man of singularly noble character. Aunt Margaret was a Miss Aspinwall, of New York, a sister of the W. H. Aspinwall who was one of the builders of the Panama Railroad and for whom the Isthmian town, now known as Colon, was originally named. She was a very stately woman and I stood in great awe of her, though she never gave me the least reason to be afraid of her. She must have had a strong sense of humour and she used to tell of herself, that, as a young girl, she had made a resolution never to marry a Presbyterian, a Philadelphian, or a doctor and her husband was all three of these objectionable things.

My recollections of this first Philadelphia stay are few and vague, for we returned for a much longer visit the following year.

My oldest brother, Charles, graduated in 1868 and immediately went to Pittsburgh to a position with a firm of ironmasters. September of that same year was a very memorable date in the history of Princeton,

for it was marked by the inauguration of Dr. McCosh and the beginning of the Renaissance. I shall defer college matters, however, to a later chapter.

Earlier in the fall, my Mother and I went back to Philadelphia and lived in Uncle's house till the following February. The house, at the northwest corner of 9th and Walnut Streets, was just across 9th Street from the old Walnut Street Theatre, which I supposed to be a den of nameless wickedness. Oddly enough that was the first real theatre I ever visited, when I saw Taylor's *Our American Cousin,* in 1876. My Uncle was eighteen months older than my Grandfather, whom he much resembled in character, though not in appearance. He was then almost totally blind, but could distinguish day and night and could tell the time from a specially made watch. Though he lost his sight after he was sixty years old, he had acquired some surprising compensatory powers. He needed hardly any help in getting about and, when driving about Philadelphia, he always knew where he was. He sometimes took me with him in his carriage and would astonish me by telling me to look at such a house, which he would describe and then tell me who lived in it.

I was put to school with Dr. Fairies, who had a large and excellent school in Juniper Street, and there I had almost the only good teaching that fell to my lot before I went to college. As was always the case, I liked my school work and studied hard; much to my Mother's joy, I was usually at the head of my class in the weekly reports and it was a grievous disappointment to us both when I fell to second or third place. From the modern point of view, the school would be regarded as sadly lacking in athletic equipment; we had no playground, only a large playroom, which occupied the whole top storey and contained some gymnastic apparatus. I cannot remember ever taking part in any game at the school and there was no instruction or oversight in sports, though I have a vague recollection of a functionary, who did something for the older boys, it may have been fencing, or boxing. My memories of recess are of standing about in the brick-paved schoolyard, if the weather permitted, or up in the playroom if it were too wet or too cold to be out of doors.

This was the only one of my schools in which corporeal punishment was systematically given; a long, flexible rattan in the hands of the dread Doctor himself was the instrument. Usually, one or two cuts across the palms of the delinquent's hands were deemed sufficient, but, in serious cases, other parts of the anatomy were sought out. We little boys had an overpowering dread of that rattan and our conduct was most exemplary. The punishment was light, but the rattan ruled supreme and the school

discipline was excellent; I doubt if equally good results could have been obtained in any other way.

Though, as I have said, I liked school and the school work, just as at home, I had no playmates and was a very lonely child, for I did not feel at liberty to ask any boys to my Uncle's house and was rarely invited anywhere myself. Under these circumstances, it is not surprising that I made no friendships or even lasting acquaintances among my schoolmates. The only exception was Dr. Howard Kelly, the eminent surgeon of Baltimore; we had kept track of each other, but did not actually meet until a few years ago.

My Uncle and Cousin Len were so absorbed in their profession that they seemed to have no social life, though they may have had much of which I knew nothing. They lived in the simplest way, though, from the modest standpoint of that period, they were quite wealthy and extremely generous men. As was very general in Philadelphia at that time, dinner was at three and an extremely light "tea" at seven. The abomination of five o'clock tea was still practically unknown on this side of the Atlantic, but I would have welcomed it then, for, having eaten very little of the distastefully simple dinner, I was ravenous by "tea" time.

From this time I date my acquaintance with *Punch* and *The Illustrated London News,* which not only came to the house every week, but were also represented by long rows of bound volumes, though *Punch's* cartoons of our Civil War drove me to fury. Uncle, and especially Cousin Len, were great admirers of the English and I remember the latter's once saying to me, in reply to a savage remark of mine against the hated Britishers: "They are a noble people and we have much to learn from them." Little as I liked the implied rebuke, the reply had a useful and lasting effect.

The presidential election of 1868, which resulted in the choice of General Grant, caused great excitement in Philadelphia. Innumerable were the parades by day and torchlight processions by night, a custom of long standing which seems to have completely disappeared from our politics, at least so far as the torchlight is concerned. The memory of the Civil War was still strong and gave the processions a decidedly military character. The marching clubs wore uniforms of light oilcloth, with forage caps of the French type and capes over the shoulders. I never shall forget a torchlight procession of Republican clubs, miles in length, which marched down Broad Street. That street was not then blocked by the hideous monstrosity of the City Hall, but permitted an unbroken view. The endless vista of blazing and smoking torches was a

very impressive sight. By that time, I was old enough to take some interest in politics and to be very anxious over the result of the election. My opinions were, of course, those of my family.

The spectacular event of our long stay in Philadelphia was the great fire of January 1869. Uncle, blind and nearly helpless, was the only man in the house that night, for the butler and coachman had their own houses. The fire was only a block away from us, at the corner of 9th and Chestnut Streets, where a great marble building, housing three large shops, was burned out and completely gutted. The burning building extended along 9th Street to Sansom Street and from the latter to our stable was a row of groggeries, which would have burned like tinder, had they once been set on fire. There was thus a real reason for apprehension and I was terror-stricken and, though I said nothing, my Mother's keen eye penetrated my reserve. Uncle had the maids busy in making and serving coffee to the firemen, who came to the kitchen in squads, drenched and weary men, to whom the hot coffee was like new life. To insure respectful treatment to the servants, he remained in the kitchen all night and my Mother with him. The picture of these two, who loved each other so deeply and said so little about it, seated before the kitchen fire, the firemen streaming in and out, has remained one of my clearest memories.

My Mother went out hardly at all during that winter, for the theatre was taboo and, as she had no musical ear, she cared nothing for concerts. Of one public entertainment which she attended, however, I retain a very distinct recollection, and that was of the evening when she went to hear Charles Dickens read. I well remember her disappointment over his appearance, saying that he was overloaded with rings and chains and wore a velvet coat! It is strange that I should remember this, when the name of Dickens meant so little to me, as I did not begin to read him till some years later.

Something may here be said about the Philadelphia of 1868. The city was already very large and a great centre of manufacturing and, like most American cities, its growth had been very rapid. Water supply, of an inferior sort, sewers and gas there already were, but the paving was atrocious, rough cobblestones[1] in the streets and, generally speaking,

[1] The very meaning of "cobblestone" would seem to have been lost in this country and a pavement of smooth granite blocks is usually said to be one of cobblestones. Properly speaking, a cobblestone was a large, rounded and water-worn pebble, eight inches or more in long diameter; the name was derived from the use made of such lapstones by cobblers and shoemakers for beating leather.

brick sidewalks. It was the broad, flanged rails of the street-car tracks that made it possible to drive a carriage over the rough cobbles, but getting into and out of the tracks, as was constantly necessary, was a racking experience, both for the wheels and the teeth. With such pavements, really clean streets were impossible, but they could not be called filthy. Especially characteristic were the comfortable, spacious, three-storey houses, nearly all of them with pressed brick fronts and white marble trim and front steps; many of these still remain. There were no high buildings, four or five storeys being the limit save in a few large hotels.

Business streets, such as Market Street, were a tangle of telegraph poles and wires, which were far from ornamental. There were no respectable railroad stations and Market, Broad and other streets had lines of rail, along which passenger and freight cars were drawn by mules. When we went to Oxford by way of West Chester we entered a railroad car standing in Market Street, at 9th Street, and then the cars, each with its own string of mules, were hauled out to West Philadelphia, where the train was made up and the engine attached. Freight cars were hauled in much the same way and there was a large freight station at 13th and Market Streets, which became Wanamaker's store.

The passenger stations, such as the Pennsylvania and the Camden and Amboy in West Philadelphia and the Reading at 13th and Callowhill Streets, and others, were dirty, comfortless barns, which would not be tolerated nowadays. As its name indicates, the Camden and Amboy Railroad was originally between those two cities, and New York passengers went on from Amboy by steamboat. I have heard my Mother tell of driving to Hightstown (nine miles) to take "the cars" (as trains were then called) when any one wished to leave Princeton in a hurry. In addition, short pieces of railroad were built, such as the Newark and New York, the Philadelphia and Bristol. These were gradually extended, until they formed a complete line between Philadelphia and New York, or more accurately, Jersey City. The Camden and Amboy secured control of this line also, which was called the United Railroads of New Jersey, and in 1872 the entire complex was taken over on lease by the Pennsylvania. That explains the presence of a Camden and Amboy station in West Philadelphia.

We returned to Princeton in February 1869, just before my eleventh birthday. I found the place in a mania of *tableaux vivants* which went on, now in one house, now in another, for many weeks. My services were frequently required, sometimes as a performer, more often as an

errand boy. I enjoyed it all immensely, it was such a contrast to the cloistered life I had been leading in Philadelphia. For the remainder of the academic year, I went to "Edgehill," an excellent school, but, unfortunately for me, that was its last year in Princeton, as it removed to Merchantsville, N.J. The property was sold to Admiral Emmons and is now the site of the Hun School. My all too brief months at Edgehill were of great value to me, especially in two respects: I had my introduction to science in the form of lectures on chemistry, with fascinating experiments, and I was taught to spell. For years, chemistry was my particular hobby and I was allowed to set up my own laboratory.

In 1869, there began a series of ephemeral boys' schools in Princeton, all of which I attended and which seldom lasted more than a single year. Had the matter not been so serious, it would have been extremely amusing, for, with one exception, these schools were farcical. The exception went on for two years and promised to grow into a large and flourishing school, but the principal, though a good teacher, had a violent and ungoverned temper, which brought him into fatal collision with his pupils and their parents. The wreck of this school was a calamity, for its successor was worse in every particular and finally, in despair, my Mother took me away and put me in charge of private tutors. Had not entrance requirements been much less exacting then than they are now, I don't see how I ever could have got into college. One great benefit I owe to my penultimate and almost successful school and that was the acquaintance of General Kargé, a Pole, who was professor of modern languages in the College and also taught French and German in the school. After the break-up, he kept his favourite pupils, several of whom rose to high distinction, for private lessons at his house and he refused to take any fees from us. Though too nervous and irritable to be a successful teacher of a large college class, he was admirable with a small group of boys who wanted to learn and would make reasonable progress. With idleness or stupidity he had no patience and his loud denunciations were often startling. "Ah! You! Your head is filled with sawdust." "You have rice pudding for brains." Nevertheless, he taught us well and I owe him much.

"The General," as he was always called, had had a wonderful career and the story of his life, as he told it to a group of us, sitting around a campfire in Wyoming, was the most romantic and fascinating tale I have ever heard. I wish I might tell it here, but my memory of it, after more than fifty years, is too vague. He had been in the Prussian army, and, together, with his brother, a Catholic priest, had been involved in

the abortive revolution of 1848. Condemned to death by a court martial, they had had to flee for their lives. The General escaped to England and his brother went through Russia into Central Asia, where he was held captive for many years. Arrived in this country, the General supported himself by teaching until the outbreak of the Civil War, when he promptly volunteered and, being a trained soldier, rose rapidly in rank, until he became Colonel of the 2nd New Jersey Cavalry. In 1865 he was mustered out with the rank of Brigadier General. After a brief career in the regular army he resigned and became professor of modern languages in Princeton, a post which he held till his death in 1890. My most intimate association with him was during the first Western expedition, when he had charge of our division in Wyoming, where we all grew to be much attached to him. I shall have more to say of him in my account of that expedition.

My Grandfather's secretary was a theological student named Caspar René Gregory, who soon afterward went to Leipsic and spent the remainder of his life there, becoming a German subject and a professor in the University. He acquired a great reputation as an authority on New Testament Greek and was made Tischendorf's successor. He liked to remain in the house at his work till very late at night and, by giving me lessons in Greek grammar, he bribed my Mother to sit up and lock the doors after him.

While in school and thrown into companionship with other boys, I learned to play games, especially baseball, to which I was devoted and played whenever I got a chance on school nines, or merely "scrub" aggregations. More than once we all walked to Lawrenceville, five miles, played a game with the seventh or eighth nine of that school and then walked home again. Could there be more eloquent proof of my devotion to the game? In spite of my enthusiasm for the game and assiduous practice of it, I never rose above mediocrity as a player, nor did I do much better in any other sport. I learned to swim and to ride and more even than baseball I loved the horses. Thanks to the unstinted kindness of my uncle, Colonel Stockton, I was able to enjoy a great deal of riding, exploring every road for miles around Princeton. My rides were always solitary and I narrowly escaped some ugly accidents from having my horses fall with me. For shooting I never cared, though, perforce, I learned how to handle a rifle. The Morven woods and pond, the orchards and stables were my royal domain, which I exploited to the full, but would have enjoyed more, had I not been so much alone. After the apples had been brought in for the winter, I subsisted chiefly upon

them and thought my Mother tyrannical for limiting me to fourteen apples a day!

It is usually very difficult to fix the turning points of one's life, the parting of the ways which was to determine all one's future. For me, however, the month of June in 1870 and again in 1876, had that decisive character. In 1870 I first met my future wife, Alice Post, a niece of my Uncle Wistar's wife. Almost from the first meeting, I determined to marry her, though she was only ten years old and I a small boy of twelve. That marriage was the crowning good fortune and blessing of my life, but it is not fitting that I should enlarge upon it here. Of course, in those early days, no one took it seriously but myself and it earned me an unmerciful lot of teasing, but I meant it and stuck to it, with the happiest results.

Needless to say, I remember the Franco-Prussian War very fully. Everything combined to make us pro-German and anti-French; even my cult of the great Napoleon, which was formed and nourished by J. S. C. Abbot's absurd biography, did not hold out against the pressure of family and community opinion. The years that my Grandfather spent in Germany, as a young man, had a profound effect upon him and made him friendly to all things German so long as he lived. Louis Napoleon's Mexican adventure and his hostility to our government in the Civil War were not forgotten, but the chief cause of our sympathy with Germany was due to the belief then held by all the world that France was the aggressor. How skilfully Bismarck had manoeuvered France into a false position and made the war inevitable was not known for a generation later.

The swift and ruthless course of the victorious German armies not only amazed us, but frightened us a little, as if with some dim, far-off premonition of the horrors that were to come in 1914. After the fall of the Empire and the proclamation of the Republic, American opinion began to veer toward the unfortunate French. For some unexplained reason, the *New York World* was violently anti-German and every day printed stories of imaginary French victories, until that course became too ridiculous to be kept up any longer.

The three years, 1870 to 1873, were a homogenous and uneventful period of my life. I was in school, or with tutors, preparing in a very inadequate way for college, working hard under teachers who were mostly incompetent. In summer, with older companions, I did a lot of swimming and took my solitary rides. In 1871 my second brother, Hugh Lenox, received an appointment to West Point, thus beginning the re-

markable military career which he has summarized in his book, *Some Memories of a Soldier*. During those years, I was hardly ever away from home, except that in July 1872 I paid a visit to my oldest brother, Charles, and spent a very enjoyable and instructive month in Pittsburgh, visiting glass houses, iron, steel, and copper works, and learning much that was useful.

At the close of that visit, I had an adventure, which shows how much more was expected of boys of fourteen than is the case now. My brother was sending home a beautiful Kentucky mare, who had been threatened with the blindness that afterwards befell her and, in accordance with the absurd veterinary practices of those days had been copiously bled, so that she was very weak. I was put in charge of the mare and we travelled in the same train, I in the sleeping car and she in the express car. In the morning, when we arrived in West Philadelphia, I had the mare taken from the train, watered and fed, then I led her down Market Street two miles, or more, to the Delaware River. There we took a steamboat for Trenton, where I borrowed a saddle and bridle and rode home, and very hard going it was for both of us. The mare was so weak from the barbarous treatment given her that she could go no faster than a walk and it took four hours to cover the ten miles and the summer dusk had deepened into night when, at last, I stopped at the front door of Morven.

In that same year, 1872, I became a member of the First Presbyterian Church, to which so many generations of my family had belonged.

CHAPTER FOUR

COLLEGE LIFE—UNDERCLASS YEARS

IN 1873 I entered as a Freshman the College of New Jersey, as Princeton University was then officially called. In those ancient days, entrance examinations were held only in Princeton and were oral, so that the candidate was immediately informed whether he had passed, or failed. The method had the great advantage of giving the examiners a chance to use their judgement as to the character and abilities of the aspirants; the present system is impersonal and mechanical.

As I look back on the beautiful halcyon days of that autumn some sixty-five years ago, I see so many differences from the modern order that I find great difficulty in giving any adequate conception of what those days were like. On the whole, the change is vastly for the better, but, as in human affairs generally, progress and improvement are paid for by the loss of fine and desirable features which it would have been well to keep. Athletics had not yet attained the inflated importance which they subsequently developed, but the process had already begun, had we only had the wit to see what it portended. The baseball nine of the spring of 1873 was ranked as the best of the Eastern colleges and their victories over Harvard and Yale were acclaimed with great enthusiasm.

Underhand throwing had, shortly before, been allowed to take the place of straight-armed pitching and, as the pitcher then stood fifteen feet nearer to the home plate than he does now, the underhand throw gave tremendous speed. Nevin, of Yale, was the first of the college pitchers (to the best of my knowledge and belief) to adopt the new style and he threatened to sweep the field. However, the '73 Princeton batters were too much for him and Arthur Pell continued in the old way and won his games. Already the newspapers were beginning to make a great feature of intercollegiate sports and, could that baneful influence have been neutralized, the present deplorable situation could hardly have been reached.

All athletic sports were then in a very primitive and unorganized state and it is a thousand pities that they could not have remained in that condition. Coaches and training tables, except for the boat-crews, were then unknown and all the elaborate and costly paraphernalia of modern college sports had not then been devised. Can any one now imagine a baseball game with Yale watched by a hundred people, or so? I witnessed that in the fall of my Freshman year and, ten years later, things were not very different.

Dr. McCosh came to Princeton from Queen's College, Belfast, in 1868 and with him began the renascence, for his was an inspiring leadership and he awakened enthusiasm among the alumni. Almost immediately began that great building programme that has gone on ever since. Dr. McCosh's first building was the old gymnasium, which stood on the present site of Campbell Hall. Next in order came Dickinson, which replaced the scandalous old classrooms of which I have spoken, and which was burned down in 1920. The School of Science and the Chancellor Green Library were finished in 1873 and, for the first time in its history, the College had a librarian, Mr. Frederic Vinton, who came from the Library of Congress. Before the Chancellor Green was built, the library, of some 25,000 volumes, was housed in Nassau Hall, in what is now the Faculty Room, and a professor was in charge of it. He attended at certain hours of the week, to issue books to those who might be so troublesome as to want them.

Another feature in which the old College differed very markedly, and much to its advantage, from the Princeton of today, was in the incomparably greater interest and importance of Whig and Clio Halls. It was customary, in those days, to say that the Hall training was the most valuable part of a Princeton education and there was much truth in the saying. Faculty and Trustees were most zealous guardians of the Halls' interests and it was in those interests that the Greek letter fraternities had been excluded. Every entering student had to sign a pledge that he "would not become nor remain a member of any other secret society" than Whig or Clio Hall. The Halls also exacted a similar pledge from every candidate for admission to membership. In spite of this, some of the fraternities had clandestine chapters in Princeton, the members salving their consciences by maintaining that the pledge was void, because compulsory. The students (people didn't talk about undergraduates then) disapproved of such sophistry and, so far as I could discover, the great majority were opposed to the admission of the fraternities.

Nowadays, save to those who were my contemporaries, or immediate successors in the student body, it would be very difficult to give a conception of the vigorous life of the Halls and of the very large part which they played in the activities of the College. The secrecy of their proceedings was strictly maintained and almost every student was a member in active standing of one or the other Hall; Hall spirit and rivalry entered into every department of college life, save athletics, which were neutral ground. The Junior Orations, which were established in Washington's day, and the Lynde Prize Debate were held before crowded audiences and the prizes were among the most coveted honours. The announcement of the names of the prize-winners was made on the Commencement stage and these names were received with the wildest enthusiasm and storms of cheering from the members of the victorious Hall.

After evening chapel on Friday, was held the business session of an hour or so, and at 7:30 in the evening came the formal exercises of debating, delivering of speeches and reading of essays. At intervals through the academic year were held contests and gold medals were awarded as first and second prizes to the winners. For the most part, each one of these contests was restricted to a single College class, but the extempore debate, open to both Juniors and Seniors, was the competition which aroused the greatest interest and enthusiasm and the medals for it were the most coveted of Hall honours.

Our debates were very far from being merely academic; the passions of the Civil War were still hot and often broke out fiercely between Northern and Southern students. I recall many evenings, when feeling ran very high and bitter words were exchanged, but I never witnessed any violation of decorum, except such as could be controlled by the presiding officer. As the business and exercises were entirely under the management of the students, the Halls held a very high place in the affection of their members. Graduate, honorary and Faculty members belonged to an upper house and had no rights in the students' weekly meetings, except such as were extended by courtesy. Judges for the various contests were elected from the upper house by the members of the lower and, when I became a member of the Faculty, I often found this duty a burdensome one. The training in parliamentary law and practice given by these meetings was extremely valuable and the student who followed his Hall work faithfully gained not only a familiarity with parliamentary law, but also an experience in debating and thinking on his feet that was most useful in any walk of life. In my own

case, I have always felt that I owed an immense debt of gratitude to Whig Hall, of which all the men of my family, back to my Great-grandfather, had been members, though Jerseymen were mostly Clios. That the modern undergraduate no longer has the same vigorous and inspiring experiences that the Halls gave us, is his undoubted loss.

The Class of 1877 entered about one hundred strong; our studies were all prescribed, and our classroom work was in mathematics and languages, ancient and modern. The School of Science opened its doors in September 1873, but as the course was then but three years long, the first Class was that of '76. It was a great handicap to me that I continued to live in my Grandfather's house, so far away from the campus, and that I was only fifteen years old. Not that I was the youngest of the class —several members were junior to me—but I had never been at a boarding school and was like a fish out of water in so large a class. The handicap of extreme youth turned out, in the long run, to be a great advantage, for it gave me a remarkably early start and brought me back to Princeton at a very unusual conjunction of affairs, when the way was open to rapid promotion. In addition to the handicaps of my situation, there were the disadvantages due to my own personal peculiarities.

On a preceding page I pointed out that I had had to pay a high price for the great privilege of growing up in my Grandfather's family. Part of this price was that I was never really young, owing to my lack of playmates and constant association with grown people. I loved many forms of outdoor sport, but as a man loves them, and the sort of thing that amuses and interests most boys had no attractions for me. I was green enough and bumptious enough, Heaven knows, but it was in the want of experience, not in the point of view. From the spoiling and petting of that big family, of which I was the youngest member, I had gained a very inflated idea of my own cleverness and importance and, with it, a positive, dogmatic way of talking that has clung to me all my life and has often caused me the greatest mortification. This unfortunate habit I have never been able to break, just because it *is* a habit, of which I am entirely unconscious, until I learn that I have given offence unwittingly.

Though much younger in years, in experience and in knowledge of my fellows than most of my classmates, I was, in many ways, far older than they and was unable to sympathize with, or even to comprehend, their point of view. They brought to college the schoolboy habit of mind, especially in the matter of distrust and suspicion of their teachers, whom they regarded as in a perpetual conspiracy to play some unseemly trick

upon the students. In consequence, there was a hostility toward the Faculty, which, happily, has long since given way to a much better relationship. It was impossible for me to believe that the sedate gentlemen, some of them highly distinguished scholars, whom I had known and respected all my life, were capable of the sinister designs which the Freshman imagination attributed to the professors. I was, therefore, a "facultyite," a most disgraceful thing to be. "Bootlicking," or currying favour with instructors, was abhorrent to all rightly constituted minds and I was held to be guilty of that, because I could not be standoffish with old friends.

I have quite forgotten the nature of the mortal grievance that drove our class to revolt early in the term. At all events, we held a largely attended meeting in Mercer Hall, which was neutral ground, not under college control, and passed all sorts of desperate resolutions, leading, as I remember it, to threats of a strike and a refusal to attend classes. I endeavoured to point out that, situated as I was, it was quite impracticable for me to take part in the movement, but I was hardly given a hearing and was impatiently invited to "shut up."

I do not dwell upon these facts in order to explain or mitigate my unpopularity with my classmates, or, perhaps, it would be better to say, want of popularity, for I think the feeling was negative, not amounting to dislike. Other members of the class, in situations like mine, were much better liked. Andy McCosh, son of the great "Jimmy" (as we always called him), the President, no less, was very popular. Andy, though a canny Scot, taciturn, undemonstrative and unenthusiastic, was held in a real affection. This shows discernment on the part of those callow youngsters, for Andy's great qualities, which shone forth so brightly in his career as one of the leading surgeons in New York, were not obvious to the unobservant.

Early in my Freshman year a friend of my oldest brother, in Pittsburgh, asked a classmate of mine what sort of a person I was and received the reply: "Oh! he's a queer kind of a chap; never has anything to do with anybody." Nevertheless, I did make one friend, Frank Speir; "his adoption tried," I grappled him "to my soul with hoops of steel." For more than fifty years ours was a warm and unbroken friendship, despite the fact that we took opposite sides in the controversies of the Wilson administration. His family, too, received me with the utmost kindness and cordiality.

Another very close friend was Harry Osborn, who was long one of the most distinguished of American men of science. That friendship,

however, did not begin till our Junior year, though I was greatly attracted by Osborn when I first saw him. As a Freshman, he was very young-looking, tall, slender, with fair hair and pink and white complexion; he was, despite a very obvious manliness, almost girlish in appearance, which earned him the nickname of "Polly," and "Polly Osborn" he is to this day to the men of '77. We were rather lavish with girls' names: "Sally Speir" was so called because of his soft voice and poor little "Lucy Colton" was our first loss; he died early in the year.

Hazing, which is now as extinct as the dinosaurs, had a somewhat chequered career, while it lasted. Often it died away almost to nothing and again it flared up into a serious abuse which had to be sternly suppressed. There was little hazing in my undergraduate time and, personally, I saw nothing of it, though I heard of some very mild attempts in that line.

The "Cane Spree" was not the organized and representative affair that it afterwards became, but was a rather enjoyable and thoroughly sportsmanlike contest between the whole Freshman and Sophomore classes, with the upperclassmen as umpires. The theory was that Freshmen were not allowed to carry canes and when, on an appointed evening, the whole Freshman class marched up Nassau Street, each one with a cane, the Sophomores soon appeared and endeavoured to take our canes away from us. It was not a mass attack, but a series of single combats and, in a rough and ready way, the contestants were as evenly matched as possible. I was attacked by a little Frenchman from New Orleans and instantly we were rolling in the thick dust of Nassau Street. I kept my cane, for my opponent was no Hercules and neither of us had much skill.

That I could play a fair game of baseball was my one redeeming feature. I began as catcher on the second nine of the class and was speedily promoted to the first; no small honour, for the class nines were then held in high esteem, perhaps I might even have "made the Varsity," had I been able to go on. At all events, I was so hammered to pieces, that I had to give up the game. Underhand throwing, almost as swift as the overhand, had just come in and the pitcher's box was fifteen feet nearer the plate than it is now, yet the catcher had no protection, neither mask nor padded glove, body pad, or leg-guards. No one could have endured the pounding, had it been necessary for the catcher to play the whole game close up to the bat, as is now the practice. We played close up only when there was a runner on base; at other times the catcher stood far back, taking the pitched balls on the bound, for,

at that time, a foul or the third strike was out, if caught on the first bound.

Though, in all essentials, the game that it is today, baseball still retained some persistent anachronisms. The rules and changes in them were made by the professional authorities and amateurs followed in their wake, sometimes resisting an unwelcome innovation, but accepting it sooner or later. At the time of which I write, the batter had the right to demand a high or a low ball, and as this required more accuracy from the pitcher, he was allowed six balls. Sliding to bases was little, or not at all, practised and so the uniforms were usually made of white flannel, with unquilted breeches. The College colour was orange, after William of Orange-Nassau, "of glorious, pious, and immortal memory." The black was (mistakenly) added some years later.

Besides our baseball matches, in which but a small number could take part, there was a form of football, open to everybody, which we used to play in the quadrangle between East and West Colleges, or in the open ground back of East, after evening chapel, when the days were long enough in fall and spring. The sides were made up alphabetically, without regard to classes. Some one called out "A to M on this side" and every one was immediately placed and the game began; it was great fun and we all enjoyed it, but it was pretty rough and timid souls refrained from playing it. The game, which was played with a light, black rubber ball, was of the simplest description and about the only rules were that you couldn't tackle with your hands, run with the ball, or advance it by throwing, but must advance it by kicking it or batting it with clenched fist. Though tackling was forbidden, violent collision was not and the roughness of the game arose from the fierce charging of one player into another, so as to spoil his kick. I well remember how Bishop Denny of Tennessee (such is his present title) laid me flat, with all the breath knocked out of me. It was surprising that more players were not injured by collision with the trees, but this accident happened rarely.

There was a football team, which played a modified form of the Association game; occasionally, they engaged in intercollegiate matches, but these attracted little attention and, until I was put on the team myself in my Senior year, I never witnessed one of these games.

Once a week there was compulsory attendance in the gymnasium, which was devoted entirely to club-swinging, George Goldie standing on the springboard and leading the exercises. We all hated it as an intolerable bore and I cannot imagine that it was of the smallest benefit

to any one. It was very different with the proper work of the gymnasium, for Goldie was an admirable teacher and many of his pupils acquired a degree of proficiency as gymnasts and acrobats that would have done credit to a circus.

The first Christmas vacation brought me a novel and delightful experience, my first visit to Washington. General David Hunter, my step-grandmother's brother, invited his nephew Charles and myself to be his guests for the vacation. The old gentleman, who was so bitterly hated in the South because of his actions in the Civil War, was, like so many other soldiers with a fire-eating reputation, the kindest and gentlest of men and he took pleasure in showing us the sights of Washington. One especially memorable occasion was a public reception at the White House, when he introduced us to the President, General Grant being a warm personal friend of his. Washington made a great impression on us as a stately and beautiful place, though with a great many blemishes, some of which still persist, but the potentialities of the city were already obvious and we found the machinery of the government fascinating.

In 1874 the intercollegiate regatta on Saratoga Lake was established and our class crew won the Freshman race and, for many a long year, that was Princeton's only aquatic triumph. The '83 crew came nearest to a victory and was the occasion of the Glee Club's satirical description of the event:

> The boat-crew thought it won a race,
> But it only tied for second place.

As the canal was the only place for rowing practice, it is hardly surprising that Princeton crews did not distinguish themselves. In those days the shells were six-oared and there was no coxswain, the bow oar steering with his feet. Though I did not "make the crew," despite strenuous efforts, I learned to row and got a deal of pleasure from it, especially in a pair-oared shell.

The greater part of Sophomore year I was away from college, because of an illness which befell me in the Christmas vacation. I have long believed that that illness was chiefly, if not altogether, imaginary. Not that I was a malingerer, for I first thoroughly deceived myself and then the family and the doctors. I was ordered to stop all work and live in the open air. My Grandfather decided to send my Mother and myself to Europe to recuperate; for her it was the fruition of a lifelong, passionate desire and she had infected me with much the same spirit. We

were to sail on May 1, but, in the meantime, there were three tedious months to get through, doubly tedious because I wasn't allowed to do much reading. I was expected to ride every day and was glad to do so, though the muddy roads took most of the pleasure out of riding.

The spring of 1875 was the most backward within my recollection of this part of the world. Even yet, I believe, March and April of that year, taken together, are the coldest since American weather records have been kept. On Saturday, April 24, just a week before we sailed, my Mother and I went to West Point to say good-bye to my brother Lenox, whose third year as a cadet was nearing its end. On our way back to New York it began to snow and so much fell as to delay our train greatly and we arrived in Hoboken, where we were to spend Sunday, so late that no means of conveyance was to be found and we had to wade a mile, or more, through drifts up to our knees.

At last, the long-awaited May 1 arrived, but there wasn't yet a hint of spring and we put out into a stormy sea that gave me the worst Atlantic passage I have ever had. Our ship was the *California,* of the Anchor Line, sailing to Glasgow. In comparison with modern liners, the flush-decked steamers of those days were most uncomfortable in fine weather and floating hells in a storm, though they possessed the all-important quality of being excellent sea-boats. When we had secured our passage, my Grandfather inquired with great interest about the tonnage of the steamer and, when I told him that she was of 3,000 tons, he was much impressed with her size, which was a little more than one-twentieth of that of the *Leviathan.* He said: "When I went over in '27, it was in a ship of 500 tons."

The *California* was as good as any steamer of her time, though a few were larger. The superstructures which rose above the upper, or spar deck, were deck houses such as the companionways and wheel house; otherwise, the deck was uninterrupted and one could walk from bow to stern. The forward part of the first-class companionway was a small smoking room into which not more than ten men could crowd. All the staterooms were down in the hull, as was also the dining saloon. In many ships of that time the saloon had cabins on each side of it, so that, when eating a meal, one could enjoy the full benefit of seasick passengers. The *California* was not so bad as that, her saloon occupying the whole breadth of the hull, but that didn't make things very much better. Light and ventilation came from low skylights, which had to be kept closed in heavy weather, even on the leeward side, and, after being hermetically sealed for a week, the air in that saloon was

something quite indescribable. In fact, the whole ship was a conglomeration of stenches surpassing, I am confident, the two-and-seventy which Coleridge distinguished in Cologne, "all well defined and several stinks."

The only lighting in the passengers' quarters was by means of oil lamps, which gave but a feeble illumination; those in the saloon were hung in gimbals, like a compass, so that they remained upright, however violently the ship might roll, or pitch. Between each pair of staterooms was a small, triangular closet, with sides of ground glass and in this a little oil lamp was placed, each lamp lighting two rooms. All lights went out at 10:00 p.m. and then there was nothing to do but to go to bed.

In the saloon meals were served on long tables, with rows of revolving chairs on each side of them. The cooking was pretty bad and the bread and coffee were vile, meat and vegetables of little variety, but very fair, and no fruit but oranges. The baths and sanitary arrangements were disgracefully bad, much worse than needful even in that period of poor plumbing. In short, the luxury of a modern liner was conspicuously absent and a sea voyage was a very uncomfortable undertaking, though some passengers enjoyed it, or professed to do so. My own sentiments were well expressed by the captain who took me to Panama in 1911, when he said: "The man who goes to sea for pleasure would go to Hell for recreation."

For a week the weather grew steadily worse, culminating in a terrific gale on Friday night, when a sailor was washed overboard almost within arm's length of where I stood. As we learned, on landing, the German steamer *Schiller* was wrecked that same night on one of the Scilly Islands, with fearful loss of life.

It would be a waste of time and good paper to give any account of our three months' tour of Europe; we saw something of northern Italy, Switzerland, Germany, Belgium, France and Great Britain and enjoyed our experiences beyond the power of words to express. I shall merely mention a few adventures that were amusing or significant. Travelling was cheap in those days; our hotel coupons from Cook cost us two dollars a day each and provided for everything but luncheon. It was then the universal custom on the Continent for the guests in a hotel to dine together at table d'hôte, almost always at six. It was a pleasant custom and one often made agreeable acquaintances in that way. One day, in Paris, we were seated at table opposite an English clergyman and his wife; after exchanging a few remarks, the lady said

to me: "I see we are all English in this hotel." "No," I replied, "we are Americans." "Indeed? Why you speak English remarkably well!" "I ought to, as that's my mother-tongue. What did you expect us to speak, Choctaw, or Chinese, or what?" "Well, no, not exactly, but I didn't know that Americans spoke English!"

In the railway station at Brussels, where we were waiting to take the train for Paris, I found that I had to have another franc to pay for registering the luggage. I therefore asked an elderly Englishman, whom I had seen, but not spoken to, in our hotel, whether he were going to Paris. He replied that he was and then I explained my need of a franc and asked him to lend it to me, which he very kindly did. We got into the same compartment and, after some talk, he said: "You are Americans, aren't you?" "Yes." "What part of the country do you come from?" "We live about fifty miles from New York." "Were you ever in Princeton?" "That is our home." "Oh! Indeed! and do you know Dr. Moffat?" "He is one of our nearest neighbours." Then he told us of having travelled in Italy, five years before, with Dr. Moffat and Dr. Duffield, Princeton professors both. By a strange coincidence I had begged the franc from the one man in Brussels who knew any of our friends.

My first acquaintance with Prussian militarism came about in Cologne. On a very narrow sidewalk I had got some little distance ahead of my Mother and turned back just in time to see a Prussian officer in full uniform shoulder her into the gutter. In a fury, I started back to give this gentleman a lesson, but my Mother seized me and begged me not to make a scene. In 1912 the world was scandalized by the behaviour of the German officers in Saverne (Zabern) in Alsace and the way in which the civil government meekly submitted to it, but to those who knew Germany from the inside there was nothing surprising in the whole affair. It merely let a rather obvious cat out of the bag: namely, that the real government of Germany was the army.

At the boarding house in Queen Square, where we lived while in London, we met Mr. Roswell Smith, who published or edited the child's magazine, *St. Nicholas*. He told us one day that he had been to Oxford to see Lewis Carroll and had tried to induce him to write for the magazine. Carroll refused, saying: "I am but a seldom writer." In the same house there were a couple of young Americans, who amused us at dinner one day by telling us of their adventures in some small town. When they wished to return to London, they could not find the station and asked several people where the railroad depot was, but nobody

knew what they meant. Strange folk that didn't understand their own language!

We were surprised to see how completely all traces of the Franco-Prussian War, which had ended only four years before, had been removed. Paris was still marred by the ruins of the Tuileries and the Hotel de Ville, but they were the work of the communists, not of the Germans. That summer of 1875 there was great tension between France and Germany and a renewal of the war was threatened, but we had no suspicions as to the state of affairs and I did not learn of it till I went to Heidelberg as a student in 1879. The German intention to attack France was then openly discussed as a matter of history.

The homeward voyage was almost as bad as the outward one had been, but the gale did not last so long and we had a few quiet days at the end.

CHAPTER FIVE

COLLEGE LIFE—UPPERCLASS YEARS

WHEN college reopened in September 1875, the easy-going ways of that time permitted me to rejoin my class as a Junior. To be sure, I was supposed to make up for the time I had lost by a series of special examinations, but, as a matter of fact, I never took but one of these. My whole future was dependent upon my reinstatement in my class and had I known that, I should have been more punctilious about "making up" my work.

In Junior year we had, for the first time, considerable freedom in the choice of studies and, as the courses were of only two hours a week each, we had to take at least seven, instead of four or five as at present. The complete change of atmosphere from the earlier years was most acceptable and I seemed to be entering new and more spacious worlds, when I took up physics with Dr. Brackett, psychology with Dr. McCosh, logic with Dr. Atwater and, above all, English literature with Dr. Murray. This latter course was a delightful revelation to me; I had, it is true, done a lot of unsystematic reading and knew a considerable amount of Chaucer, Shakespeare, Milton and the great novelists, but I had no conception of English literature as a whole. The systematic survey of the whole field, the growth and development of literature since Anglo-Saxon times, its connection with history, its sources and relations to other literatures, were so novel and so charming, that I have never forgotten the course, or ceased to be grateful to Dr. Murray for it. I also kept up some Latin, French and German. Dr. Guyot's course in geology, which was to be so pregnant with fate for Osborn and myself, did not begin till the second term. I took no part in the games, except the informal football previously described, but did a lot of work in Whig Hall, which I attended with the utmost regularity.

It was a great experience to be brought into contact with Dr. McCosh. That he was a great man, we all recognized and felt and, while we admired him and were desperately afraid of him, we made fun of his

peculiarities and Scoticisms, among ourselves, and always called him "Jimmy," in affectionate derision. I served under him in the Faculty for eight years and shall have much to say of him as a colleague; here I am concerned with him as a teacher. His brusque, dictatorial manner, and the loud-voiced, table-thumping anger with which he met any opposition, gained him many enemies and there was a party among the alumni, especially in New York, that hated him and opposed him in every possible way.

In my graduate year, he once "gave himself completely away" to me and showed that his "big, bow-wow style" was merely a deliberately adopted pose and that, as Napoleon said of himself, his anger never rose above his throat. From that moment I lost all fear of him and fear was replaced by an affection that grew steadily till his death. At the time of which I am writing, however, fear still prevailed, though mild and tempered with amusement. The Scottish universities then were notorious for their disorderly classes, and Jimmy seemed to be in a state of continual apprehension, lest a riot should break out in his lecture-room and he sternly repressed anything that might be the beginning of disorder. The means of repression which he employed were often so comical that they would only have added to the disorder, had there been anything deserving to be called so.

The Doctor knew very few of his students by name: they were the unfortunate ones, for he generally selected them for reproof, when anything went wrong. William Libbey, subsequently and for many years our professor of physical geography, had the double misfortune of being well known to Jimmy and of sitting directly in front of him. Not infrequently, a quaint Scottish phrase would raise a laugh among the students and this was usually followed by: "Mr. Libbey! I distinctly saw you laughing, Sir!" even though poor Bill would be sitting as grave as a judge. On one occasion, Libbey's patience gave way, and, rising to his feet in great wrath, he began: "I beg your pardon, Doctor, but I—" Dr. McCosh was far too canny to let him finish and so he interrupted with: "Your apology is accepted, Sir! Sit down." Bill had to swallow his indignation as best he could, for he could hardly explain that nothing had been farther from his intention than to offer any apology.

Sometimes no scapegoat with familiar name would be sitting near the point of disturbance and then Jimmy would say: "You had better be careful, Sir! I know within one or two of you." An almost unfailing cause of laughter was the Scottish pronunciation of Ji for J; every one

with a name shared by more than one member of the class and with J as his first initial, was invariably nicknamed Ji and remains so to this day. For instance, the man who sat on my right was John Scott and Dr. McCosh always called us "Mr. Ji Scott, Mr. W. Scott." Sometimes, a student would inherit the name of Ji from an older brother. Hugh Stuart, in my class, was always "Ji Stuart," because of his brother James in the class above us; they were distinguished as big "Ji and little Ji." All these little episodes were but bubbles on the surface of the admiration which we all felt for him and the interest with which we listened to his lectures.

Though I was but seventeen years old, I think I may date my attainment of manhood from the fall of 1875. I have already explained how it happened that I had practically no youth and how prematurely I acquired the grown-up point of view. My trip to Europe had been a great factor in hastening maturity, not only because of what I had learned of geography and history, art and architecture, but also on account of the way in which I had acted as courier for my Mother. I made all the arrangements, bought the tickets, paid the hotel bills, carried the passport and letter of credit. Everything had to be done at the lowest possible cost, for the gold premium, 17 per cent, took a terrible bite out of our slender funds. The passport we took because we had been strongly advised to do so, but it was not of the smallest use to us; in fact, I never could induce any one in Europe to look at it.

Another very important factor in my development was in becoming an upperclassman. We ceased to be schoolboys and acquired an entirely new point of view through entering a new world of thought. Also I was beginning to find myself in the work of Whig Hall, to hold my own in the swift give and take of debate, to think rapidly, coherently and systematically on my feet, gaining a respect and consideration from my fellows that I had never had before. This consideration was increased by the results of the first term's examination, when, greatly to my surprise, I came out at the head of the class, a position which I held through the remainder of the course. No doubt, it was this distinction which relieved me of the necessity of "making up" the Sophomore examinations.

All these things contributed to make a man of me, but gave me no increase of popularity among my classmates, who, with one insignificant exception, never elected me to any office either in the class or in Whig Hall, or took any official, or collective notice of me. I may seem to have been unduly sensitive about so small a matter as student popu-

larity, but that is really not the case. I was not in the least unhappy because of my isolated position, but accepted the situation, to which I had long been accustomed, as a matter of course. What makes this want of popularity actually important, was the condition which arose some time after our graduation. With some individual exceptions, such as Osborn, Speir, and Pyne, the class never devoted any of their generous gifts to the support of my work or the development of my department. This proved a serious handicap to me, increasing the difficulty of securing vitally necessary funds.

The remainder of my Junior year passed off in very quiet, routine fashion, until near the end of it. The old house had become very still, for the great family had dwindled to four, my Grandparents, my Mother, and myself, and there was no young life left. We did no entertaining and accepted no invitations, save for the three annual dinners held in the various households of the connection, Thanksgiving at Uncle Wistar's, Christmas at Morven, and New Year's at our house. On such occasions we mustered some twenty-five or thirty strong, counting the children, for always some kinsfolk from a distance turned up. Though we had no social life outside of our own four walls, none of us cared anything about that; we were all very busy in our several ways, happily occupied with congenial work, I was much attached to both families of my small cousins and saw as much of them as my busy life allowed.

For many years before my Grandfather's death, he and my Grandmother regularly spent the month of May in Washington. My Mother usually took advantage of their absence to visit among her Philadelphia kin, leaving me alone in the house with the servants. Thus, I learned to live happily in almost complete solitude, an accomplishment which afterwards stood me in good stead.

On May 10, 1876, the Centennial Exposition was opened in Philadelphia with appropriate ceremonies and I, with a small party of friends and classmates, attended. That was really the beginning of a new era in American art. We were then at the very nadir of mid-Victorian bad taste, what a wit has called "the early Pullman period," and the American and German exhibits of furniture, textiles, wallpaper, pottery, and the like were, with few exceptions, abominable. I can remember, with a shudder the acres of furniture, heavy, costly and hideous, spread out in the vast "Manufactures Building."

The effort of the Germans was best described by their own Commissioner, Roux, as "billig und schlecht," his translation of "cheap and

nasty." In his letters home, which were afterwards collected and published as a book, he smote his countrymen hip and thigh for their want of taste and skill. He said that German plastic art seemed to exhaust itself in making innumerable busts of the Kaiser, Bismarck, and Moltke, in every possible material from marble to soap. There was much truth in this scathing criticism and it was almost equally true of the American display. The Germans had some redeeming features, such as Dresden china, but if we had any, I fail to remember it. Of course, machinery was another story; I have been speaking of industrial art.

On the other hand, the British display was conspicuously beautiful, in the strongest contrast to the American and German exhibits. This humiliating contrast awakened the country to a knowledge of its backwardness in the arts and led to a remarkable renascence, especially in architecture, in which America now leads the world. The English sent over a remarkable collection of paintings, which were hung in a permanent stone building. One of the most popular of the English pictures was "Circe and the Companions of Ulysses," by Rivière, in which the companions had already been turned into swine. There was a story current of that picture, that a rustic standing before it and reading the title from his catalogue said: "Well! if that aint the roughest thing on old Grant that ever I see!" Three years later, I met Mr. Rivière in Professor Huxley's house in London and told him that story, which seemed to please him greatly.

My brother Lenox graduated from West Point in June 1876, as a Second Lieutenant of cavalry and was spending his graduation leave at home, when the news came of Custer's defeat and death on the Little Big-Horn, in Montana. Len's first assignment was to the 9th Cavalry, a negro regiment, but, after the fight, he was transferred to the 7th, which had been almost wiped out with Custer. Under the system of promotion then in force, this was an unlucky change, for Len remained a First Lieutenant for more than twenty years, while all his West Point classmates were promoted far over his head.

Near the end of Junior year there occurred an incident which, though it seemed trivial enough at the time, nevertheless proved to be the pivot on which turned not only all my subsequent career, but that of Harry Osborn as well. He had intended to go into the business of railroads and finance in the office of his father, who was a wealthy man and had been president of the Illinois Central Railroad. I had determined to study medicine and the arrangements for my sojourn in Philadelphia had already been made. The incident to which I referred

has already been described in the preface of my *History of Land Mammals in the Western Hemisphere,* but as that work has not had a wide circulation, I may repeat the story here. Certainly, no account of my life could be complete that omitted the tale.

We had reached the examination period in June and, one very hot day, had gone down to the canal for a swim. Personally, I can remember only Osborn and Speir as being of the party, but I have reason to think that Ji Scott was there also. After bathing and dressing, we lay on the canal bank and tried to read Paley, but it was too hot to do real work and we began to talk. I said: "Fellows! I have just been reading in an old *Harper's* an account of a Yale expedition to the Far West in search of fossils; why can't we get up something like that?" I hardly meant my question seriously, but Speir and Osborn took to the suggestion at once and, with one voice exclaimed: "We can, let's do it." The most curious part of it all is that we did, thanks to the enthusiasm and determination with which we pushed the scheme.

Both Osborn and I had been immensely interested in Dr. Guyot's course in geology, which filled the second and third terms of our Junior year; though we had no laboratory or field work, but only lectures and a text-book. Dr. Arnold Guyot was an eminent Swiss, a voluntary exile from Neufchatel, who came to this country with Agassiz in consequence of the revolution of 1848. He never fully mastered English and, when he prepared his remarkably successful series of geographies, he required the assistance of a well trained woman to put them into linguistic shape. We speedily learned to follow the quaint English of his lectures and the subject matter so fascinated us that we resolved to pursue it independently. In the late summer I received a letter from Osborn, suggesting that Speir and I should join him in a camping trip through the Catskill Mountains and teach ourselves some field geology, as a preparation for the projected Western trip.

Our starting point was from the country house of Mr. Osborn, Sr., at Garrisons on the Hudson, opposite West Point. We had a light, covered wagon with one horse and carried a tent, camping equipment and provisions. Our first goal was Lake Mohonk, where we camped two or three days and had our first sight of glacial markings, and then pushed on to the Catskills. At the Mountain House we found Dr. McCosh and his family and had no difficulty in inducing Andy to join us for the rest of the trip. He never said so, but I fancy that "me son Andrew" was very much bored with life in a summer hotel. I had several talks with Dr. McCosh, who flattered me by treating me as a

grown man, laying aside all magisterial airs. Once, in reply to a eulogy upon Dr. Guyot which I pronounced, he said: "That's all very true, but Guyot has never trained a geologist." That remark often recurred to me, when I had become Dr. Guyot's successor and was subjected to the same criticism. In both cases the explanation was the same, that the system then in vogue at Princeton made the training of a geologist an exceedingly difficult undertaking. In the last twenty-five years we have trained a great many.

We extended our journey as far as Howe's Cave, which we explored, a novel experience for all of us. We also collected a good many fossils, some of them fine specimens, and chiefly from the Silurian limestones. Then we retraced our steps and separated to our respective homes.

Almost as soon as college opened in September and we began our career as "grave, old Seniors," we started to carry out our plans for the Western expedition and the first step was to create as wide a basis of interest as possible by talking the matter up among the Juniors and Seniors. Our propaganda, as it would be called nowadays, was very successful and that encouraged us to form a "Natural Science Association," which held weekly meetings, at which papers were read by the members. I was elected president and this was the sole honour conferred on me by my fellow students, as mentioned on a previous page. The attendance and interest were maintained throughout the year, as we proposed that members of the expedition should be selected by competitive examination.

At this time, I was an ardent anti-evolutionist, enough so to have endeared me to the heart of Mr. Bryan. My Grandfather had written a little book called *What is Darwinism?* which he put through the press in the autumn of 1874 and I had begun my apprenticeship in bookmaking by reading the proofs of that book. My Grandfather's answer to his own question was that Darwinism was Atheism. Naturally, I shared his conviction, as I should have accepted any opinion of his. The book was savagely attacked by many scientific men and Professor Asa Gray, the eminent botanist, criticized it in more temperate language. All this made no impression on the old gentleman and, as to Gray's criticism he merely said: "Gray admits that I have stated Darwin's position fairly, I don't care about the rest." In the discussion which raged among us over Darwin, my dogmatic way of talking and hot polemics earned me the nickname of "Huxley," which I

accepted as a compliment, despite my complete antagonism to everything for which Huxley stood.

Speaking of nicknames, I should perhaps explain that "Wick," by which I have always been known to intimate friends, dates from my nursery days and was conferred upon me by my oldest brother. The name is a far cry from William and I have often been asked to account for it; it has always been dear to me, as having something of the force of the German *du*.

Through Senior year I was kept very busy by a multitude of duties and distractions. I had to work hard to keep my place at the head of the class; Whig Hall and the Science Association took a lot of time and also attendance at Dr. McCosh's "Library Meetings" was a not unwelcome demand upon my time. Some time ago, Dean Gauss asked me to write an account of these meetings, of which he had heard, but I could not gather sufficient material for the purpose. The meetings were held in Dr. McCosh's study; a paper on some philosophical subject was read, by some member of the Faculty, or invited guest, and then discussed by the audience, which was made up chiefly of Seniors. The discussion was seldom lively, though sometimes a paper on a highly controversial subject would start a debate that grew warm. Yet these meetings served a very useful purpose and were part of the machinery which Dr. McCosh employed to raise the level of intellectual life at Princeton to a truly university standard. He had to develop his plans slowly and cautiously, always hampered by insufficient funds and by the vigilant opposition of the extreme conservatives among the Faculty and Trustees, whose watchword was: "Change is not reform."

Early in the fall the new football team was organized, with Andy McCosh as captain and, much to my joy, I was made a member of it. We played a modified form of the Association game, with fifteen players on a side. Our uniform was very ugly, orange jersey and stockings, black breeches and cap. No protective armour was needed, for there was no scrimmage and tackling was not allowed. We had no coach or training table and did very little practising, but I am confident that we got a great deal more fun out of our game than the modern players do from their burdensome and laborious training. We played Columbia at Hoboken and Pennsylvania at Philadelphia, winning both games handily. Then came the revolution, which arose in the following manner.

We received word from Yale and Harvard that they were abandoning "soccer" (as it is now called) and that, if we wished to meet

them, we should have to take up the game which is misnamed "rugby." This would be swapping horses in mid-stream with a vengeance, but we did it. At the mass meeting of the students, called to consider the question, I made a speech advocating the change and felt very heroic and magnaminous in so doing, for I knew that such action would put an end to my football career. Of course, there was no time to organize a brand-new team that should amount to anything and, needless to say, we lost both games. But in the following year (1877) we beat Harvard and in '78 Yale.

The autumn and winter of 1876 were agitated by the Hayes-Tilden presidential campaign and the disputed election; at times, feeling rose to fever heat and made many people apprehensive of another civil war. I was a rabid Republican and thought that the election of Tilden would be an irreparable calamity, jeopardizing all the results so hardly won in the war. I had no belief in the charges of inefficiency and corruption brought against General Grant's administration, and thought that the *Sun's* daily reiterated slogan of "turn the rascals out" was mere political claptrap. Nor had I any real conception of the horrors of reconstruction and the "carpetbag" governments in the South. Partisan feeling among the students ran very high, though never, to my knowledge, leading to the rupture of friendships. We had torchlight processions, speeches and bonfires galore, bitter words passed between Northerners and Southerners, but, when the decision was finally reached in February, every one acquiesced and calm succeeded the storm.

One of the advantages of the Halls in that period of their vigorous life, was that they brought together on equal footing men of all classes and I formed durable friendships with members of the Class of '78 and of '79. In '78 Harry Marquand, Percy Pyne, and William Dulles, and in '79 Woodrow Wilson, Cleve Dodge, and Robert Bridges are the names that stand out in my memory as companions of those days. Of all that choice company, Bridges is the only one who remains.

In the winter '77-'78, Bishop John Johns of Virginia came to visit my Grandfather, like him a member of the Class of 1815. It was delightful to witness the meeting of these long-separated friends, who had taken opposite sides in the Civil War, but without any diminution of their mutual love. The two old boys chaffed and ragged each other mercilessly and, though I remember that fact very distinctly, I can recall but a single incident. It was in my Grandfather's study one day, when the venerable pair came in from a walk. The Bishop took off his cloak and hung it over the back of a chair and, after a time, my Grandfather

picked it up and threw it over his shoulder, saying: "Is there any grace of orders in this garment, John?" "Not now," said the Bishop.

That reminds me of a somewhat similar repartee made to my Grandfather by Miss Lottie Shields (afterwards Mrs. Bayard Stockton, a most delightful person). Going out of his front gate one sleety day in winter, he found the brick sidewalk a glare of ice. Miss Shields, who was passing, slipped and fell almost at his feet. As he helped her up, he said: "Ah, Lottie! the wicked stand in slippery places." "I see they do, Sir," was the swift retort. I don't remember the date of this episode as clearly as I recall the glee with which the old gentleman recounted it to us at the dinner table.

Part of the Christmas vacation I spent with the Osborn family in New York, as I also did in the following year, 1877. The events of the two visits are inextricably mixed in my memory. In one of them I was tormented by a toothache which was still "going strong," when Mrs. Osborn took us to hear Händel's *Messiah*. The music so enthralled me that, incredible as it may seem, I quite forgot the toothache. I have often heard the oratorio since then, in England, in Germany, and in this country and always with profound emotion, but that first hearing remains a unique experience. Part of this effect was, I think, due to the singing of Miss Anna Drasdil, who took the contralto parts; her beautiful voice, deep and sincere feeling, her stately and gracious presence were all so perfectly fitted to the music, that I have never since been so thrilled by it; the reverberations of that night are still with me.

In the period of which I am writing there was an evil custom known as "Chapel Stage Speaking." Each Senior had to write an original speech and deliver it on the pulpit platform of the Old Chapel to as much of the public as might wish to attend. Every Saturday the speakers came on in batches of twelve or fifteen, until the whole class had performed. Being extremely busy, I neglected this oration until the last possible moment and then scrambled together something in praise of Puritanism. This neglect very nearly cooked my goose, when the question of my appointment to an instructorship came up three or four years later. Dr. McCosh was much displeased and took me to task; by way of excuse, I said: "Why! Doctor, I wrote that speech in twenty minutes." "So I should imagine, Sir!" was the annihilating rejoinder. My Mother had come to hear me speak and, thinking the performance a feeble one, made no secret of her opinion. It was long before I heard the end of that unlucky oration.

The remainder of Senior year passed with dizzy speed; every moment of my time seemed to have been taken up and, as if I had not enough to do, Henry van Dyke and Allan Marquand set me to compiling statistics for the *Princeton Book*. Propaganda for the expedition took up much time and thought and hard labour; we capitalized the attack upon Princeton which the New York *Tribune* was carrying on that winter and declared that such an expedition would be the best answer to the calumnies. What lay behind that attack and who engineered it, I never learned, but one of the participating elements was obvious enough and that was the strong anti-McCosh party of the New York alumni, who had been offended by the President's want of courtesy toward them. Others disliked the old Doctor's boastfulness about the wonderful progress which "me college" had been making under his administration, which involved, and not always by implication merely, a criticism of his predecessor, Dr. McLean.

This boastfulness was not, I believe, egotistical at all, but a well calculated scheme of advertising and what is now called publicity, but it was not always carried out with tact. In the attempt to raise funds for the expedition, I wrote a solicitation to a prominent New York alumnus, telling him that the project was very close to Dr. Guyot's heart. He replied that he would greatly like to contribute to a plan strongly favoured by Dr. Guyot, but that while Dr. McCosh remained President, he would not give a cent. This party of the New York alumni was, by no means, the whole story in the anti-Princeton movement, but I do not definitely know who constituted the other elements in the attack; I have certain very shrewd suspicions, but no proof.

This was the first of a series of attacks upon Princeton which recurred, at intervals, for many years and culminated in the great battle of President Wilson's time. These will be noticed in proper chronological order; here I shall merely state that most of them so far succeeded as to retard the growth and development of Princeton for a generation. No other college was so persistently maligned and calumniated and the whole movement is very mysterious. Internal quarrels, unfortunate but not really important, inflated to portentous size by newspaper mendacity, the touchy vanity of certain trustees and the malice of rivals all contributed to the deplorable result. We seem now to have outgrown that sort of thing.

I have mentioned my attempts to raise money for the expedition. This was the beginning of my long and shameless career of mendicancy, which has not entirely come to an end even yet. I have been compelled

to finance all my work, other than teaching, by begging, for there has been no endowment for it and that is where I particularly missed the organized support of my class. Oftentimes the task of pestering my friends for money so disgusted me that I would vow I could keep it up no longer, but always the desire to accomplish some bit of work has driven me back to begging ways. The ambitious programme of research which I brought back from Germany in 1880 might have been more nearly approximated, if I had not been constantly compelled to raise the needful funds by solicitation.

At last the Western expedition, which we had so diligently talked up and shoved along, began to assume definite shape and was authorized and financed by the Trustees. It was decided that there should be two leaders, Professor Brackett to direct the scientific work and General Kargé to look after the military end and direct the marching, camping and, if necessary, the fighting with Indians. There were to be sixteen students selected by competitive examination from the Senior and Junior classes, who were to make collections in botany, zoology, palaeontology, and mineralogy, while Walter Devereux of '73 and Howard Butler '76 were to take the photographs. Matt Goldie, proctor, and Peter Armour, janitor of the School of Science, both of whom had been soldiers in the British Army and seen much active service, were to be taken as cooks and teamsters.

The expense of transporting so large a party was very greatly reduced by the liberality of the railroads, which gave us free passes for our entire journey and supplied a baggage car as well. The Pullman Company was no less generous and furnished us with a sleeping car without charge. Thus, the only expense in travelling was for our meals. Each student member of the party contributed $150 toward the expenses and the additional $10,000 was given by the Trustees. General Kargé was all fire and enthusiasm for the proposed campaign and insisted upon organizing it on a military basis. He made arrangements with the State Arsenal, in Trenton, for the issuance to us of rifles, tents, blankets, saddles, etc., and, from the War Department he secured permission to purchase, at any military post, such quartermaster's and commissary supplies as might be needed. This constituted a great saving in expense, for the commissary prices for provisions were usually a fourth, or less, of those charged by the post traders.

The General demanded that we should be instructed in drill and rifle firing and so, all through that spring, we met in the gymnasium, I don't remember how many evenings per week. Here arose a difficulty;

the General could not undertake, with any prospect of success, the work of a drill sergeant and, when he tried to make us practise the goose step, we thought he must have gone out of his mind. The problem was solved by the volunteered services of a classmate, "Nigger Jim" Denny, who had been thoroughly trained in a military school and was an excellent instructor. Zeal and intelligence made us very apt pupils and we picked up the manual of arms, and such marching evolutions as could be carried out by a platoon, with a quickness and precision that delighted our teacher. Next came target practice and, in the early mornings, we marched in column to Stony Brook and there, in the valley above the old mill, we did our firing.

All of this most superfluous and unnecessary training was due to General Kargé's belief that we might have to do more or less fighting with Indians. When he went to Washington, to make arrangements with the War Department, he was so proud of us and our proficiency in the military art, that he said to General Sherman: "General, in a fight with Indians, I would rather have my boys than your regulars." General Sherman's only, but characteristic, reply was to put his thumb to his nose, as Kargé told us with great glee when he got home.

All this varied and intense activity that seemed to absorb every moment of my time, brought me with express speed to the "Senior Finals" and in those examinations I kept my place at the head of the class, but, for some time, the question of the first honour at graduation remained undecided, because of my uncompleted Sophomore year. Finally, the Faculty decided to divide the honour between McNeill, who was afterwards professor of astronomy at Lake Forest, and myself. The Latin Salutatory was awarded to McNeill and the English Salutatory to me, thus giving him a shade the better of it. I also received the Experimental Science Fellowship by default, for the income of that foundation failed for several years and there was no competition for the empty honour.

When the problem of first place had been finally settled, I hurried home and into the study and said: "Grandfather, you owe me a gold watch." In great surprise, he asked: "What do you mean?" "Why! don't you remember? When I was six years old, you promised me a gold watch if I graduated at the head of my class and I have just learned that I have tied with another fellow for first place." The old gentleman laughed and said: "No, I don't remember anything about it, but I must keep my promises." He immediately wrote out a cheque and handed it to me saying: "Go to New York and buy the watch yourself."

Commencement Day came as a great relief to me, for all through that spring I had been so driven by the multiplicity of my engagements. On Class Day I escaped the roasting which most of my classmates got at the Cannon Exercises. The only reference to me was from Manners, the "presentation orator," and it is very strange that it should have remained in my memory through all these years. He said: "Princeton has no Marsh, but if Wick Scott lives through the scientific expedition, a greater than Marsh will be here." That was getting off cheap, considering what the other fellows came in for.

Commencement exercises were then held in the First Church and were mercilessly long; in addition to the two salutatories, Latin and English, and the valedictory, there were a dozen or fifteen other "orations" by members of the graduating class. I got through my speech without a breakdown and heaved a great sigh of relief, for now I could get some longed-for rest.

That night we started for the West.

CHAPTER SIX

FIRST WESTERN EXPEDITION

BEFORE I give an account of our travels and adventures in the Far West, I ought to say something of the remarkable state in which vertebrate palaeontology then was in this country. It will be seen later that this is not a mere digression, but is entirely germane and necessary to the understanding of my story.

At that time and for some years later, the science was almost exclusively in the hands of three uncommonly able and distinguished men. Dr. Joseph Leidy and Professor E. D. Cope, of Philadelphia, and Professor O. C. Marsh, of Yale. Dr. Leidy, one of the most remarkable of American men of science in many departments of research, was first in the field and began to publish descriptions of fossils from the Far West in the 'forties of the last century. His reputation became so great, that almost all discoveries of vertebrate fossils in the United States were reported and usually the specimens were sent for description to him. Dr. F. V. Hayden, head of the U.S. Geological and Geographical Survey of the Territories, systematically forwarded to Leidy the vertebrate fossils gathered by his parties.

Hayden had the great advantage of being regarded by the Indians as a madman and therefore sacred, and this enabled him to visit many places which were inaccessible to other white men. Though Leidy had many fine things at his disposal, his material was, for the most part, very fragmentary, consisting of bones that had been weathered out of the enclosing rock and lay in a more or less shattered state on the ground. The art of collecting had not then reached the high degree of skill and efficiency to which it afterward attained. No doubt, it was largely for this reason that Leidy's palaeontological work was so largely descriptive and objective and devoid of theoretical deductions.

Professor E. D. Cope, of the well known Philadelphia family of that name, was, at the time of which I am writing, a man of independent wealth and his only official position was a nominal connection with the

Hayden Survey. For Cope's work I had always the greatest admiration and I still regard him as one of the very ablest and most brilliant men I have ever known, though my first introduction to him was anything but encouraging. "The Triumvirate," as we were sarcastically called, Osborn, Speir and myself, had learned of Cope at a time when the field of our explorations was still under discussion and the place then most favoured was Fort Wallace in western Kansas. As Cope had collected there and published extensively of his finds, we thought it would be wise to wait upon him for information. Accordingly, we called at his house in Philadelphia and explained our plans, begging him to tell us where to go. We could extract no information from him; he was polite and pleasant enough, but absolutely noncommittal and he showed no interest in our undertaking. When I asked him whether the country around Fort Wallace was good collecting ground, he answered: "It was before I went there" and declined to say whether it still was, or not.

Such an attitude toward enthusiastic neophytes seems incredibly unscientific, not to say churlish, but it was chiefly due to the rivalry and hatred that existed between Cope and Marsh, which extended to everything that either one of them did. I cannot doubt that Cope refused to give us any information because of the off-chance that we might be emissaries of the foe. Not long after our return from the West, Osborn and I became warm friends of Cope's and wholeheartedly espoused his cause in the unending quarrel. It is a remarkable instance of this intense rivalry, that Cope described and named new fossils by *telegraphing* from the field to the Philosophical Society, so as to make sure of priority.

Othniel Charles Marsh, a nephew of the philanthropist, George Peabody, was, from 1866 to his death in 1899, a professor at Yale. Like Cope, he was a man of wealth, as wealth was measured in those days. I did not meet him till 1881, when he called on me in Heidelberg, but I already disliked him, because of what I knew of his little ways. Indeed, I came nearer to hating him than any other human being that I have known and his hostility to me had a really detrimental effect upon my career. Like Charles Lamb, in the story which Woodrow Wilson was fond of repeating, "you can't hate a fellow you know," but Marsh's egoism, his extreme selfishness and unscrupulous duplicity aroused very strong feelings in me. Our dear Dr. Guyot, one of the most gentle and kindly of men, could not endure him and the elder Dana, the famous geologist, though a colleague of Marsh's at Yale, cherished the strongest dislike and disapprobation of him, as appears from many letters that he wrote to me.

Notwithstanding all this, Marsh was a very able man and he rendered immense services to American palaeontology in a series of really wonderful discoveries; he fully deserved his great reputation here and in Europe. Fürbringer, of Heidelberg, called him "der grösste Paläontolog aller Zeiten," which is somewhat extravagant praise. I never thought him equal to Cope; if the two could have cooperated, the results would have been marvellous.

Dr. Leidy, whose acquaintance we made the following winter, when we were continually running to Philadelphia to consult him, was at that time drawing out of palaeontology and devoting himself to other lines of work. For this course he had two reasons, both true, but only one was for publication. I think it was Sir Archibald Geikie who tells of Leidy's having explained the cause of his deserting palaeontology. He said that formerly any one in the country who found a fossil would send it to him as a matter of course, but now Cope and Marsh, both rich men, were paying real money for such junk and bidding against each other and, in consequence, he was getting very little material. This was true enough, but not the whole truth, for he once expressed to me privately his extreme dislike of the Cope-Marsh squabble and said that he was getting out of palaeontological work because he didn't wish to be drawn into the quarrel.

The palaeontological war was sustained and abetted by the chaotic state of the geological work done by the various agencies of the U.S. Government. No less than four distinct and rival organizations were engaged in surveying and geologically mapping the Western country; they had long official names, but were popularly called after their chiefs, Dr. Hayden, Lieutenant Wheeler, Mr. Clarence King and Major Powell. Leidy and Cope were associated with Hayden and Cope also with Wheeler, who was an officer of the Army Engineer Corps; Marsh was connected with King and subsequently with Powell. Because of Cope and Leidy, we were partisans of Hayden and opposed to King. Clarence King must have been a man of singular charm, as appears from Henry Adams' account of him and, when I was a student in London and had the honour of meeting the great Professor Tyndall at dinner, he immediately inquired, with every evidence of sincere friendship, after the health of King.

Against Major Powell I had a strong prejudice, from which I did not free myself for years. It arose in this manner: In the spring of 1876, my Junior year, I paid a short visit to Washington and Professor Joseph Henry invited me to attend a meeting of one of the local scientific

societies, of which he was president that year. In discussing the paper of the evening, Major Powell defended the thesis that the interior of the earth was fluid, a fluidity which was due to pressure. After the meeting, I secured an introduction to the Major and asked him if he would please explain to me how pressure could liquefy substances that expand on melting. "Don't you see that?" he said. "No," I replied, "I don't see it." "You don't mean to tell me that you can't understand that?" "It's just what I do mean to tell you." "Well, then, you come to my office tomorrow morning and I'll explain it to you." I said to myself, "That man is a humbug, I've no use for him." It was a long time before the effects of this conversation died away, so that I could recognize the very remarkable character of Major Powell's career and appreciate the great value of his services to science.

In 1879 Congress took the obviously needful and sensible step of combining the four organizations into the U.S. Geological Survey, but the first director of it was Clarence King, a victory for Marsh, who was the palaeontologist of King's Survey. Mr. King held the directorship for only a year and was succeeded by Major Powell, but Marsh retained his office as palaeontologist until the end of his life. The violent ending of several surveys, particularly that of Hayden, had certain very unfortunate results. The loss of Mr. Holmes to geology was a calamity, for his power of delineating geological structures was unique, witness the atlas he made for Major Dutton's *Grand Canyon*. A great body of Cope's work, for which the lithographic plates had actually been printed, was never published, owing to Marsh's veto. In 1915, when Cope had been dead for many years, Dr. W. D. Matthew, of the American Museum, in cooperation with the U.S. Geological Survey, had an edition of these plates bound and distributed, but the text was never printed.

It was essential to give a sketch of the situation, ostensible and hidden, in the field of palaeontology when Osborn and I began our labours in it. The most unfortunate feud, to which I have referred, had many ramifications and it hindered and hampered the younger generation for years. Even yet, its effects persist, though in no very important ways, and crop out when one is least expecting them.

Of our journey, novel to most of us though it was, there is not much to be said. The Middle West was not then the busy, prosperous region that it has since become, and the principal impression which it made upon me then was one of crudeness and shabbiness. The roads were quagmires of black mud; the towns were chiefly of wood and sadly in need of paint and, though there were a great many fine-looking farms,

the journey was a depressing experience. To a large extent, this was due to the panic of 1873, a world-wide financial crash, the effects of which still lay heavy on the land and recovery was painfully slow.

After a day in Chicago, we moved on to Kansas City and then across Kansas to Denver. Only the eastern part of the state had been brought under the plough; the western half was still, for the most part, primitive plain, with herds of buffalo (so-called) still visible from the train, and multitudes of cattle, for this was in the heyday of the cattle ranch. Occasional prong-horned antelope were still to be seen and some of the party tried to shoot them from the baggage car. Shortly after that date began the senseless and unpardonable slaughter of the buffalo and in the course of a very few years they were completely exterminated. The last wild one that I ever expect to see we killed in central Wyoming in 1884. This was not wanton butchery, but dire necessity, as we were almost out of food.

Of Denver, in those far-off days, I don't remember very much, but it was already evident that a thriving and important city was here in the act of arising. The town was straggling, with many vacant lots; the sidewalks were mostly of planks and the streets unpaved, so that blinding dust storms were frequent and violent. As we had to spend some time in Denver, buying horses, wagons, harness, and equipment generally, we camped on a small stream in a grove of cottonwoods on the outskirts of the town. Here, almost at once, the incompetent and inefficient character of our leadership became apparent.

Dr. Brackett was an extraordinarily good teacher of physics and he had an uncommonly wide acquaintance with other branches of science, but of geology he had merely a book-knowledge and his experience of camp and open-air life was much too limited to fit him for the undertaking on which he was now embarked. As for the General, he made no pretense of having the least acquaintance with any branch of science and he was far too irritable and impatient to haggle successfully with horse-dealers. The result of their combined efforts was such a collection of gaunt Indian ponies, "crowbaits" in Western vernacular, as has seldom been brought together, an equine version of Falstaff's ragged regiment. In spite of appearances, the crowbaits served us well, some of them for two years. After we had received our mounts, the General made one attempt at a cavalry drill, but the results were so ludicrous that he never tried another.

At last, we were able to get started on our long southward march and had many difficulties until we learned how to travel. Our little rats of

mules were greatly overburdened and we had to store a ton or so of useless stuff at a friendly ranch. No plan of exploration had been made, no localities suitable for collecting had been fixed; in fact, the expedition threatened to deteriorate into an aimless wandering about. At Florissant we happened on some fossiliferous beds that afterwards became famous for their beautifully preserved leaves, insects, fishes and even birds. We made quite extensive collections there and arranged with Mrs. Hill, owner of the land, to forward additional material to Princeton. Our collections of plants were described by Leo Lesquereux, palaeobotanist of the Hayden Survey, and the insects by Mr. Scudder, of Cambridge, Mass. We had gathered many species new to science.

Colorado Springs, the Garden of the Gods, through the Ute Pass into South Park and thence to Twin Lakes was our itinerary, with an excursion to the top of Pike's Peak. I make no attempt to describe Colorado scenery, which profoundly impressed all of us, even those who had been in Switzerland. My Mother wrote me that she was weary of the superlatives in my letters. When we had become acclimated, our open-air life was delightful, but most of us had first to go through agonies of sunburn; my hands were swollen and blistered beyond recognition and Osborn's nose never did stop peeling. He persisted in wearing a little felt hat, with only an inch or so of brim. At a mining camp in the mountains an "old timer" remarked to him: "Stranger, either you'll have to widen out that hat-brim, or else call in that nose."

The light, dry air, for which Colorado is famous, was, to us, extraordinarily exhilarating, like champagne, and we were all disposed to agree with Bayard Taylor, when he wrote: "An air more delicious to breathe cannot anywhere be found; it is neither too sedative, nor too exciting, but has that pure, sweet, flexible quality that seems to support all one's happiest and healthiest moods." The air, owing to altitude and dryness, was astonishingly clear and had a most deceptive effect on one's judgement of distance. Often it seemed impossible that hills, which we knew to be thirty-five or forty miles away, could be more than eight or ten. A story, illustrating this wonderful clearness of the atmosphere, was so often repeated to us, that, in self-defence, one's first remark to a new acquaintance was apt to be: "Please, don't tell me the story of the Englishman and the irrigating ditch."

When I was last in Colorado (1934), I could find no one who had ever heard the tale and therefore I will record it for the benefit of posterity. An Englishman was observed to be undressing by the side of an irrigating ditch and, when asked the reason for such surprising behaviour,

replied: "I'm not going to be fooled again by this damn climate; for all I know, that water is a mile wide."

At Twin Lakes we camped for several days and had, in the creek connecting the two lakes, the most wonderful trout-fishing that I have ever seen anywhere. It was in this camp that the long-repressed hostility between our two leaders burst out into a violent quarrel. If I ever knew, I have forgotten what it was all about and who began it, but I very clearly remember that we youngsters were scandalized, to hear two grave professors slanging each other like a couple of fish wives. Scandalous as it was, this row was all to the good, for I cannot doubt that it was Dr. Brackett's determination to get rid of the General that made him decide to send the palaeontologists to Wyoming, with Kargé to lead us.

To Osborn, Speir and myself, the meaningless wandering about Colorado had been one long exasperation, a wanton waste of time, money, and opportunity. In view of the fact that we three had originated the plan and pushed it on to realization against every obstacle, it seemed doubly unjust that we should be deprived of our chance and that the very object for which the whole undertaking had been devised should be ignored. Little as we suspected it, Dr. Brackett's determination to send us to Wyoming was decisive for Osborn's future and my own. Had we remained in Colorado, I do not believe that the experiment of the expedition would ever have been tried again. The collection made at Florissant would have been a very poor return for the great outlay of money and labour. Success in Wyoming turned the trembling scale and sealed the fate of Osborn and myself.

We bade the main party an unregretful good-bye and hurried in to Denver, riding the distance of 150 miles, as we were told, in three days. At Denver a sleeping car was summoned and we went on to Cheyenne, where our car was put on the Union Pacific Railway for the 350-mile journey to Fort Bridger. Our horses were sent on by freight train.

Fort Bridger was, with the exception of West Point, the first military post that we had visited and it teemed with all kinds of interest. The term "fort," as applied to the Western posts, was a misnomer, for these posts were open cantonments, not fortified in any way. Fort Bridger was not, in the least, what the *Covered Wagon* represents it to have been. It had been built originally by Jim Bridger in 1843 as a trading post, and was taken over, enlarged and garrisoned by General Albert Sidney Johnson in 1859, and was constructed of logs, not of adobe. When we first went there, in 1877, it was the headquarters of the 4th U.S. Infantry, but the garrison consisted of only two or three companies, a

little community of ten or a dozen officers and their families, when they had any; most of them were young bachelors. We called, as etiquette demanded, upon the commanding officer and found that he had three charming daughters. They received us most cordially and said: "We *are* so glad to see you; we are delighted to meet some one who doesn't say what we know he is going to say before he opens his mouth."

Life in those little, two- or three-company posts, which were scattered through the Far West, was very hard on all concerned and especially on the women, who suffered much from the strong winds, which blew nearly every day and all day till sunset. Several army ladies told me that the dry, windy climate wore them out nervously. The isolation and long absence from friends, often from children who had to be sent East to school, added to the burden of Plains life.

The situation of Fort Bridger was very beautiful, at least in summer; it was in the verdant, wooded valley of Black's Fork of the Green River, with the fantastic desolation of the bad lands on all sides and the southern horizon, eighty miles away, bounded by the Uinta Mountains, a range of snowy peaks that rose some 13,000 feet above sea-level. The post became my familiar stamping ground for several years and this was the first of four visits, '77, '78, '85, '86, and in all of them I was accompanied by Frank Speir. Though he had taken to the practice of law, Speir never lost his interest in palaeontology and always found more and better fossils than any other member of the party, for he was a born collector.

The name of the post came from the famous trapper and frontiersman, Jim Bridger, who discovered Great Salt Lake in 1825, and one of the best-known of those old fur-traders and Indian fighters, whose exploits were well known fifty years ago, but are, for the most part, forgotten now. Captain Raynolds, who explored central Wyoming in 1855, had Bridger as a guide and mentions him in his report with appreciation. Jim was what is called a picturesque liar, but liar is not the proper word, for he never meant to deceive anybody. When we first went to the fort that bears his name, Jim's memory was still green and his yarns, or at least those attributed to him, were still current.

At the end of the last century, I attended a meeting of the British Association for the Advancement of Science in Yorkshire and was, with my friends, the Poultons, of Oxford, quartered in the hospitable house of a young lawyer. One evening, the family and guests had gone out to some function, which I evaded from weariness. My host and I, having very little in common, found conversation rather uphill work, until it

occurred to me to tell him a Bridger yarn, knowing that the Wild West appealed strongly to most Englishmen; he was so delighted that I had to scrape bare the chambers of memory for everything concerning Bridger that I had ever heard. When I was starting for Liverpool, to take the steamer home, and was already seated in the train, my host came to the station to bid me farewell. Looking at his watch, he said: "There are three minutes left before your train starts; can't you tell me another Bridger story?" This experience encourages me to set down here such of these tales as I can remember.

A young officer, fresh from West Point, once asked the question: "Jim, how long have you been in this country, anyhow?" Pointing to Bridger Butte, a ridge two miles long, that rises abruptly a hundred feet, or more, out of the plain, Jim said: "Do you see that there butte?" "Yes, of course." "Well, when I came here, that butte was a hole in the ground." To a tourist who begged Jim to take him out on a grizzly-bear hunt, the old man gave an answer that I have often had occasion to quote: "I aint lost no b'ar and I aint a huntin' for none." One day, Jim came into the post, pretending to be much excited over a marvellous country which he had discovered, where everything was petrified. "The trees was petrified and the bushes was petrified and the grass was petrified and there was a dead b'ar lyin' there and he was petrified and the drops of sweat on him, they was petrified, too." That was a little too much for the hearers, one of whom said: "Oh! get out, Jim; the attraction of gravitation would have pulled the drops off." Jim knew nothing of gravitation, but was not to be halted by any such trifle, so he retorted: "Why! out in that country the attraction of gravitation is petrified."

Bridger's most elaborate and artistic production was a story told me by Dr. Paulding, post surgeon of old Fort Laramie. According to this tale, Bridger came into Laramie one day and was promptly seized upon by a group of young officers, who demanded a story. After protesting that he did not know any stories, Jim finally said: "Did I ever tell you how the Indians chased me up the Black Canyon?" "No, we never heard that one, tell us about it." "Well, I was out huntin' west of the Big Horn range, when I see some Indians and I didn't like their looks, so I turned and rode toward the mountains and the Indians took after me. I rode all day and at nightfall the Indians was as close as ever. So I rode all night, I had a damn' good horse, you know, but in the mornin' there was the Indians; I hadn't gained on 'em a bit. So I rode into the Black Canyon and rode all the next day and night—I had a *damn'* good horse, but I couldn't shake them Indians off. All this time the canyon kep'

getting narrower and narrower, till there wasn't room to turn a horse 'round and at last I came slap up agin a wall, straight up and down—a bird couldn't fly over it." In great excitement the youngsters exclaimed: "Why! Jim, how did you get out?" "Never did get out; they killed me."

After this legendary collection of Bridger's tales had been written, I received a copy of a *Life of Bridger,* by J. C. Alter, in which somewhat different versions of the stories are recorded.

In 1877 "Uncle" Jack Robinson, a friend and associate of Bridger's, was still living at the post, though very old and infirm. He had a formula which I have frequently found useful and appropriate. When any one told him anything, he would say: "Well, mebbe it is, but I don't believe it."

By far the most prominent of the civilians at the post was Judge Carter, the postmaster, post-trader, cattle owner, and capitalist generally. He was, I think, the first to drill for oil in the mid-continental field; oil was found, but I doubt if the Judge made anything out of it. He was a venerable looking man, with a long, white beard, and was a great admirer and disciple of Herbert Spencer, despising the theologians. "Why!" he would say, in his soft, gentle voice, "this country could set up a dozen Jewish Heavens and supply them all with chalcedony and jasper, chrysoprase and sard."

The little hotel, where we put up while our equipment was being got together, was kept by an Englishman, whose name, I think, was Rickard. If his tales were true, he had come through some terrible experiences. He said that the company with which he had come West, some twenty years before, contained some very reckless and hardhearted men; one of these, meeting an Indian squaw on the plains, had killed her "for fun." That night their camp was surrounded by an overwhelming force of Indians, who demanded that the murderer should be given up to them, threatening that, otherwise, they would wipe out the party. The criminal was surrendered and the Indians proceeded to flay him alive in full view of the horrified camp. There is nothing impossible about this story, but whether our host actually witnessed this and other frightful atrocities, is another question.

Here I first heard of a man, a conductor on the Union Pacific Railway, whose acquaintance I afterwards made and who had survived scalping by the Indians. He had been one of a construction gang, engaged in laying the rails, when they were surprised by a war party of Indians, who killed all of them except this one individual and he lay on the ground motionless, feigning death. The warriors then scalped their

victims and this man went through the agonizing experience without betraying himself.

A few days sufficed to get together our equipment and we prepared to tackle the bad lands with absolutely no experience but with plenty of compensating enthusiasm. Dr. Carter, a son-in-law but no kin of the Judge, who knew something of palaeontology and had sent considerable material to Leidy, advised us where to begin. We had hired a wagon and a pair of mules, quite sufficient power, for we had no long marches to make. We had these same mules for two seasons and learned to appreciate their qualities. One of them, "Old Ute," was an incredibly sly old beast, who could work through the densest thicket without sounding her bell and when she undertook to hide it was no easy task to find her. For camp cook and teamster, we engaged one of that curious race known as "Pikes," from Pike County, Missouri, their place of origin. His name was Taylor and not only was he a very useful and competent man in his own line, but he kept us all amused with his quaint and spicy talk.

For our first camp, we moved out only ten or twelve miles to Smith's Fork, the nearest running water to the places we wished to explore. Thenceforward, for many weeks, we never slept under cover. I can't remember that we even had a tent; if so, we made no use of it and certainly we never slept in it, laying our beds on the grass and sleeping in couples, so as to make the most of our blankets and rubber ponchos. We were at an altitude of 6,000 feet or more, and the nights were always cold, frequently with frost. The dew was so heavy that a waterproof covering of the bed was essential to comfort and, as I always slept with uncovered head, I usually awoke in the morning with my hair saturated with water, except when it was frozen, as, toward the end of the season, it very often was. For life out of doors, the summer climate of all the plateau country, Wyoming and Montana, is ideally beautiful; there was little or no rain and in six seasons, spent wholly or in part in Wyoming, I cannot remember more than a single rainy night. Nearly all the precipitation was in winter snows and spring rains; at Bridger, they told us, the snow was so deep that the sentries had to walk on the flat-roofed cavalry stables. The temperature of the day was almost always pleasant in the shade, though the direct rays of the sun were very hot, but in that dry air, where continual evaporation keeps the skin cool, we paid little attention to the vagaries of the thermometer.

General Kargé was another and much pleasanter man; as he now wielded undivided and undisputed authority, he did not care to exercise

it. He left everything to us in the way of deciding where to work and where to camp, how long to stay in this locality and when to move to that. He gave up all idea of military discipline, having the good sense to see that it could only hamper us in our work. The General made no pretense of interest in the fossils; he knew nothing and cared nothing about them, but he was interested in us and our success. He took the best of care of us, looking after our welfare in the many ways which an experienced soldier would understand. We all became very fond of him and learned to appreciate his many fine qualities; we knew that he was a fearless soldier, an upright, honourable and gallant gentleman, and his little idiosyncrasies amused us without detracting from our respect and affection for him.

I must say a word of the sagebrush (*Artemisia tridentata*) so abundant over the northern semiarid plains. It grows well spaced apart and with trunk and branches very like those of a miniature oak, and is usually about three feet in height; the leaves are very narrow and of a pale sage green, which, with the odour, has suggested the name of the plant. When growing under very favourable conditions, I have seen sagebrush attaining a height of fifteen feet or more, with trunk as thick as a man's thigh. The hot sun brings out a strong, pungent and spicy odour from the sage that cannot be forgotten and is most characteristic of a strange and fascinating land. Sagebrush makes excellent fuel that needs no seasoning, but is always ready for use. It burns with a very hot fire and the coals and ashes retain their heat for a long time, a useful feature for baking in a Dutch oven.

Trees, in that region, are confined to the watercourses and almost the only kinds are the cottonwoods, a name given to two or three species of *Populus*. These narrow-leaved poplars have an extraordinary vitality and rapidity of growth; a log planted in the ground will, in an incredibly short time, form a tree, if only it has sufficient water. Very often, trees, growing on the bank of a permanent stream, attain very stately proportions and, with their rugged bark and irregular branching, are very picturesque, even beautiful. The soft, spongy wood is inferior for fuel or timber.

From the camp on Smith's Fork, we worked the bad lands on Cottonwood Creek for several days. I believe, though I am not sure of this, that the honour of finding the first fossil fell to my lot, though Frank Speir's superiority to the rest of us very soon became obvious. My find was the hind leg and foot of the little three-toed horse, *Orohippus*, and, owing to lack of experience and the utterly unsuitable character of the tools which

had been provided for us, I broke the bones up badly in getting them out of the soft rock. However, Dr. Hill's skill and patience repaired most of the damage and the specimen may be seen to this day in the Geological Museum, "to witness if I lie."

When we had gathered all the fossils we could find along Cottonwood Creek, we moved some twenty miles to the southeast to Henry's Fork, another beautiful trout stream, rushing down from the Uinta Mountains. For nearly all the remainder of our stay in the Bridger bad lands, our headquarters camp was in a fine grove of cottonwoods and willows, where we had the three fundamental requisites of a good camp, "wood, water, and grass," in abundance. We had little side camps, where small parties could carry water to the work and stick at some particular job till it was finished. At one such camp, I had my first experience of a coyote concert, a ring of these little prairie wolves seated on their haunches and baying the moon. It is astonishing what a volume of sound three or four coyotes can produce and, to the tenderfoot who hears it for the first time, it is rather terrifying.

In sending us forth on our quest, Dr. Guyot had been especially anxious to have us bring back the skull of one of the bizarre monsters with six horns, which Leidy had named *Uintatherium*. Thanks to Speir's telescopic eye, we were able to gratify Dr. Guyot's wish. Frank found and we all helped excavate a fine skull, which proved to belong to an undescribed species, that we afterwards named *U. leidyanum*. It is still, to the connoisseur, one of the ornaments of the Museum.

We made a very creditable collection of the Bridger mammals and were doing so well that we were all anxious to remain in the field till cold weather. The General was delighted with our success and wrote to Mr. John A. Stewart, one of the Trustees, pleading for more money, to keep us at work. As the time fixed for our homeward start was drawing near, the General gave the letter to me with strict orders to get it into the mail train that day. I rode into Fort Bridger with the letter, ate my dinner and secured a fresh horse, which I rode to Carter Station, on the railroad, in time to post my letter in the eastbound train, then I returned to Bridger for the night. That was the fastest day's ride I ever made, fifty-four miles in less than eight hours. However, it was all in vain; the race was not to the swift and our plea was denied. We were having such success and enjoyed our outdoor life so much, that we hated to break off and go home.

With great reluctance, we broke camp and returned to Fort Bridger, where we boxed our fossils and packed up the equipment that was to be

returned to the State Arsenal. At Cheyenne, we found the main party awaiting us; they had continued their amiable meander over the face of Colorado and had accomplished little in the way of work, but they were not to be criticised on that account, for hardly any opportunity had been given them. The botanists, McCosh and Greene, had made a good collection of plants and the photographers, Devereux and Butler, had done wonders in view of the difficulties in using the cumbrous, old wet-plate process. The convenient dry plate was not then in use.

CHAPTER SEVEN

GRADUATE YEAR—SECOND EXPEDITION

I LEFT the train at Pittsburgh, on my way back from the West, to pay a visit to my oldest brother, Charles, and was immediately struck with the great change that had taken place since I had been there in June. The fine Union Station and Hotel had disappeared and their place was taken by a hastily erected structure of rough boards. My brother had been called out as a special constable together with thousands of others and put on riot duty, armed only with a baseball bat, and had witnessed the terrible scene of destruction. He gave me a graphic description of the dreadful night on which the riot culminated. For some reason, the Pennsylvania Railroad was very unpopular in Pittsburgh; railroads were very haughty and domineering in those days and very generally hated, but I don't remember just what was the special grievance cherished by Pittsburgh against the Pennsylvania. At all events, the burghers didn't exert themselves very strenuously to protect the company and some of them even laughed at the destruction.

The railroad officials were filled with a cold and relentless fury over the behaviour of the citizens and they brought suit against the county for $5,000,000 damages for negligence and failure to protect the company's property, and won it. This made the taxpayers laugh to a different tune and the liquidation of the debt took many years. At Altoona, there were interminable lines of wrecked locomotives, from which everything combustible, cabs, cowcatchers and the like had been burned away. This made the engines present a strangely gaunt and plucked appearance which made an even more striking impression of devastation than did the burned and ruined buildings.

When I returned to Princeton it was with hardly any definite notion of what I should do next, except that, by taking a fellowship, I had engaged to do a year's graduate work somewhere. I was therefore ready to fall in with Dr. McCosh's suggestion and take it in Princeton, for he was at last prepared to start graduate work in earnest. He initiated his

new scheme with a small but exceedingly promising lot of youngsters from our class, some of them of brilliant intellect. Ormond, Osborn, Wardlaw and Williamson were all men of unusual abilities; John Wardlaw and Bill Annin died young, but they were both extraordinary men. Libbey, Speir and myself completed the list of the names that I can recall, but there were others, I am sure.

Osborn, Speir and I had comparative anatomy under W. E. D. Scott, the well known ornithologist, a course that took up the greater part of our time. We also worked in the museum, unpacking and repairing the fossils we had collected, a task in which our 'prentice hands were assisted by the expertness of Dr. Hill, curator of the geological museum. Dr. McCosh gave us an advanced course in the history of philosophy. Most novel, delightful and stimulating of all was a reading in Kant's *Kritik der reinen Vernunft,* which we had with a newcomer to Princeton, Professor W. M. Sloane, who had spent six years at the legation in Berlin, when Bancroft was the American Minister. The class in Kant used to meet in a bare room in West College, furnished only with the needed chairs and a big pine table around which we sat and in which Sloane asked us to carve our names. Sloane speedily became intimate with us all, and to Osborn, Speir and myself he was ever one of our closest and dearest friends until his death in September 1928.

We were much more closely associated with Dr. McCosh than we had been as undergraduates and began to appreciate something of his kindliness and geniality, though, like another famous Scotchman, he "joked with difficulty" and had little understanding of other people's humour. We continued to laugh at him, on the sly, but in a way that implied no hint of disrespect. I remember seeing him one day, as he strolled along a walk in the campus and kept turning to look now at one building, now at another. Bill Annin, who was with me, chuckled and said: "Look at old Jimmy, saying to himself 'This is great Babylon that I have builded'."

On a previous page, I have alluded to the manner in which Dr. McCosh "gave himself away" to me and destroyed all my fear of him and of his "big, bow-wow" manner, to use Sir Walter Scott's phrase. The incident happened in our graduate year and was in this wise. There was a harum-scarum Junior, whom we may call McAllister (as it wasn't his name), who had got into trouble of some insignificant sort, and was threatened with suspension; at his urgent request, we three went with him to the President, to intercede for him. No sooner had we

stated our mission than the old man jumped to his feet, banged the table loudly, roared at us and drove us out of the house in a ludicrous state of bewilderment and dismay. The next morning, as I was standing and talking to Dr. Atwater in the classroom, Dr. McCosh came in for his lecture. Coming up and laying his hand on my shoulder, he said: "Dr. Atwater, last night a couple of his friends came to me, to intercede for that silly McAllister lad and I gave them all a bit of a fright. That McAllister lad needs a lesson." Never again could the Doctor give me the least "bit of a fright"; he had too plainly shown that his rages were all pose.

At that time, it was the custom for the Faculty to send grave delinquents to the President for reprimand and Dean West used to tell, with great gusto, the tale of one such interview. After spreading before the culprit the catalogue of his enormities, Dr. McCosh wound up by saying: "You've disgraced yourself, Sir, you've disgraced your family, you've disgraced your college, and tomorrow it will all be in the New York papers and the next day in the Philadelphia papers"—this with no idea of sarcasm. It was not, however, till I became a member of the Faculty that I really made the acquaintance of Dr. McCosh, though the experiences of graduate year were a step in that direction.

Had we been able to foresee what lasting and incredible injury McAllister was soon to inflict upon Princeton, we should have besought the President to send him away and keep him away. After some hazing of Freshmen, the latter had retaliated by shaving the heads of a couple of Sophomores; there was also a scuffle in the street between the members of the two classes and, after the parties had separated, some idiotic student fired a pistol at random along the street, the bullet striking another student in the leg and inflicting a flesh wound. The news was immediately telegraphed to New York and, the next day, reporters swarmed into Princeton and concocted the most lurid and sensational tales about pistol battles among the students, in which, though there were no fatalities, there were many wounded.

To make matters worse, a lot of Juniors, chief of whom was our friend McAllister, thought it would be a great lark to "stuff" the reporters with all the preposterous tales of hazing outrages that they could invent. They told how Freshmen were dragged through the canal with ropes until nearly drowned and how, quite as a matter of course, they were subjected to all sorts of indignities and outrages. Whether the reporters actually believed this nonsense or not, is of no importance, but they published it, and a great deal more, and for days the newspa-

pers rang with the horrors of student life at Princeton; the news went all over the world. The London *Saturday Review* made the abominable goings-on "in a college at a town called Princetown," the text for a sermon condemning everything American. Two years later, I encountered the same sort of thing in Germany.

There can be no doubt that this irresponsible mendacity on the part of the newspapers retarded Princeton's growth for many years and, when it was reenforced by the typhoid epidemic of 1880, the effect was that of a smashing, stunning blow. Dr. McCosh must have been in despair to see the fruit of his labours destroyed by the wanton folly of a few boys, assisted, as it was in 1880, by the dense and inexcusable ignorance of the medical profession. But, if so, he made no moan and never lost courage; I never heard him say a word that even hinted at discouragement and, to the very end, he held his head high and undismayed.

The second half of our graduate year was almost entirely devoted to the study of the fossils which we had collected in the Bridger basin and to the preparation of a report upon them. The pen-drawings, with which the Report is illustrated, were, with one exception, made by Osborn, who had decided talents in that direction. The text was written by all three of us, with so much mutual consultation that I cannot now distinguish the work of one author from that of another. We kept running to Philadelphia for consultations with Leidy and Cope, who gave us much valuable advice. Cope changed his attitude entirely from the repellent position he had adopted when first we met him, and threw open his great collections for our use. He also paid several visits to Princeton to examine our material and show us how to determine it. Our work brought us much into contact with the curator, Dr. F. C. Hill, who was blessed with a delightful sense of humour. Though I knew him intimately till his death in 1890, I never heard the end of his stories.

While nearly all our time was devoted to the Bridger fossils, we kept up our work in philosophy with Dr. McCosh, and with Sloane we read Cicero's philosophical works. We regularly attended the Doctor's "Library Meetings" and I, alone of the Triumvirate, had the distinguished honour of being invited to read the paper at one of these meetings. It would have been better had I not been so distinguished, for my effort gained me no applause and, in combination with my lamentable Chapel Stage oration, rather put me into Dr. McCosh's black

books. However, when he finally made up his mind to take my name out of those books, he did so without reserve.

At one of the library meetings, the Doctor gave us a chance to "guy" him respectfully, such a chance as we never failed to grasp. He was talking of Burns and said: "I've oft drunk whiskey wi' men who've drunk whiskey wi' Bur-r-r-rns." As he was an ardent temperance advocate, we pretended to be much shocked and exclaimed in chorus: "Oh! Doctor!" We never fazed the old man, who replied: "Oh! it was merely 'kissing the cup to pass it by'; just 'here's to you' and 'here's to you'."

When I returned from my first Western trip, I found that my Mother's oldest brother, "Uncle Arch" (the Rev. Archibald Alexander Hodge, D.D., LL.D.), had moved to Princeton and thus, for a year, my Grandfather and two of his sons were members of the same faculty. Uncle Arch was a remarkable man, brilliant as a writer, lecturer and preacher, he shone especially as a talker. His conversation was a sparkling stream of wit and amusing nonsense and he so revelled in nonsense, that it was often hard to induce him to talk seriously, but when he did so talk, he was a fountain of wisdom. Three of my uncles, Archibald, Wistar, and Francis, were profound influences upon my life and career. All of them were scholarly, intellectual men, delightful talkers, of the noblest character, they were admired and loved, wherever they were known. That I should have had three such loving friends and wise counsellors, was a wonderful piece of good fortune, which, however, I did not fully appreciate, until I had lost it.

In the spring of 1878, my Grandfather's health began to fail, but did so very gradually. One day he said to me: "I wish you would get me Darwin's *Voyage of a Naturalist* from the library." I brought it to him and he read it with the keenest interest. When he handed the book to me to return it, he said: "That is a very remarkable and delightful book; now get me Wallace's *Malay Archipelago*." When he had read that, he said: "That's an excellent book, but not to be compared with Darwin's. Now I should like to have Fielding's *Tom Jones*." This he read also, but I don't recall his comment on it; I do remember, however, my surprise over his taking no offence at Fielding's plain speaking.

According to the custom of years, he and my Grandmother had spent the month of May in Washington and, while there, had attended the funeral of his old friend, Professor Joseph Henry, the eminent physicist, getting chilled from the exposure. After his return home, it soon became evident that his condition was serious, though not yet alarming. When he was very weak, I brought him the dummy made of the page proofs

and plates of our palaeontological report. He was greatly interested, though he could do no more than turn over the pages. He gave it back with the remark, "Your first book," with such an indescribably loving inflection, that I have never forgotten it.

I was then preparing to start on our second Western trip and was very reluctant to leave home with my Grandfather in such a precarious condition, and very reluctant to be left behind. While in this state of painful indecision, the family council decided that I should go, the substance of their opinion being: "You cannot help your Grandfather in any way by staying at home and the expedition is your professional work; it is plainly your duty to go." From this, it may be safely inferred that the die had already been cast and that I had made up my mind to forsake medicine and follow a scientific career.

The second expedition was on a much more modest scale than the first and consisted of but five graduate students and, as leader, Professor J. B. McMaster, of the engineering department. Two or three years later, McMaster rose to immediate fame by publishing the first volume of his great *History of the American People,* but, in 1878, this work remained a profound secret and the publication took every one by surprise for it seemed to be altogether out of character. The other members of the party were Osborn, Speir and myself, as a matter of course, and we added Andy McCosh and Bill Annin. The expenses of the expedition were borne by Mr. Libbey, Sr., and Osborn was appointed treasurer.

Andy had just finished his first year of medical study in New York and Annin was most eager for the adventure, though professing no scientific interests. It was a mistake to include Annin in the party, much as we all admired his cleverness and wit and greatly as we enjoyed his brilliant talk. He was extremely nervous and frail and physically unequal to the demands upon his strength. The hardships and discomforts of wilderness life so fretted him and made him so irritable, that he quarrelled with each of us in turn except Andy McCosh, with whom it was difficult to quarrel.

In revenge for the annoyance he caused us, we played a cruel practical joke upon him, the only thing of the kind in which I ever was involved, and I wish that I had not been concerned in that. On the way to our last goal of the season, the Bear River, in Idaho, we had been warned to be very careful, as the Bannock Indians had gone on the warpath and might come that far south. With this real fact to go on,

we had staged a night attack by the "Indians" and were only too successful in the farce.

When the day came for me to start, the doctors encouraged me to think that my Grandfather was decidedly better and I went away, not at all anticipating that I should never see him again. We travelled to Fort Bridger by the most direct route, by way of Chicago, Omaha and the Union Pacific Railway, a journey, at that time, of five days. At the fort we found a melancholy change; the garrison had been withdrawn and we found only the very small civilian population left behind. However, the hotel, the post-office and the trader's store remained and they sufficed for our immediate needs. Our horses had come through the winter in very fair condition and we could hire the same wagon and mules as we had the year before.

The state of our finances enabled us to employ three men, raising the strength of the party to nine. Taylor, the teamster and cook of the preceding year, was reengaged, and "Mexican Joe" was taken on to supply the camp with fresh meat, and Pearson, who had done some collecting with Sam Smith and knew the localities. Pearson was a *pis aller* for Smith, whom we wanted, but who did not feel free to accept our offer, though I am sure he would have been glad to do so. The work was just what he loved above all things and he liked all of us, especially Speir, to whom he was warmly attached. He helped us to the best of his ability by advice concerning the most promising country for us to work, laying out routes for us and showing us on the map where we could be sure of finding water, the all important factor in arid-region work.

Our plan of work involved quite a long journey before we could begin our collecting. Of the two basins in which the beds of the Bridger formation are to be found, we had decided to try the eastern one, because it was more inaccessible and therefore much less collecting had been done there than in the western basin, where we had ourselves worked the preceding year. We had, therefore, more than one hundred and fifty miles to go to reach our first principal camp. On the second or third day after leaving Bridger, we reached the Green River and crossed it by means of one of those ingenious wire-rope ferries, in which the current of the stream is made to propel the boat from side to side of the river.

We made the mistake of not refilling our canteens at Green River City, as we should certainly have done, had we known what was in store for us. Shortly after noon we started out again on our eastward

journey and kept on far into the night, expecting at every turn to find the water we were in search of. I am not likely to forget that ride while I live. After sunset it grew very cold and my rheumatic shoulder began to ache intolerably; we were riding toward the rising moon, which was at the full that night, and, under other circumstances, we should have greatly enjoyed the wondrous effects of the moonlight on the desert, but our discomfort from cold and thirst and weariness was too great to permit enjoyment of any spectacle. "On and still on," the interminable road kept winding away to the moon and it was not until after one in the morning, that we reached a muddy pool. The mules and horses would not drink it, but, by straining it, we made tolerable coffee.

The next morning, after a short march, we found good water and spent the remainder of the day there, to rest ourselves and our hard-tried stock. Then, by easy marches, with stops to examine the geology of the country, we reached our destination, Laclède Spring in the middle of Laclède Meadow, named for one of the early French fur-traders from St. Louis. Laclède Meadow is a grassy flat in the middle of a wide sagebrush plain, with abundance of excellent water for man and beast, but entirely without shade. Taylor and Pearson would take the wagon to some spot that I did not visit and bring back a load of the largest sagebrush I have ever seen. Excellent fuel for cooking was thus available, but we missed the campfire of logs, around which we could gather after supper and enjoy that acme of physical well-being which comes from a hard day's work and sufficient food and drink. I did not learn, until four years later, how greatly a pipe adds to this feeling.

As in the preceding season, Speir soon demonstrated his superiority to the rest of us as a collector and the many fine things which we gathered that summer were mostly found by him. When something of promise had been discovered, we would all turn to and help excavate it. The fossils were wrapped in generously cushioned bundles and packed in wooden boxes for shipment home. In "prospecting" we usually worked in couples, or at least within hail of one another, in case of accident or needed help. Here I may pause long enough to note the extraordinary good fortune that attended us in all our Western work in regard to illness and injury. One dislocated shoulder, immediately remedied, makes the list of injuries and of serious illness we had none at all. When one remembers the many risks from firearms, from climbing in mountains and precipitous bad lands, from horses, hostile Indians, fire and flood, our almost perfect immunity is really remarkable. Narrow escapes we had in plenty, but they were always escapes.

At length, we had so far cleaned up the area where we had been working that we decided to move camp to a spring not far from the overland emigrant trail to the Pacific Coast. One evening we saw a very large "outfit," of many wagons and a great tent, like that of a circus, which was encamped near us. Like all people who have long been isolated, we were intensely curious and strolled over to inquire who and what these newcomers might be. We found a very nice-looking lot of people, intelligent and prosperous, with their stock well fed and cared for. In those days, in the West, it was highly indiscreet and sometimes dangerous to ask personal questions of chance-met strangers, but those people had nothing to hide and told us all about themselves. They were the entire population of a Wisconsin village, on the move to Oregon. When we asked why they were doing that, they said it was because they were desperately tired of the long, cold winters and were in search of a milder climate.

Concluding that we had done as much as we could in the Bitter Creek country, we moved in to the railroad at Black Butte and then kept parallel to the line as far as Rock Springs. We were much interested in the Chinese labour question, then beginning its violent agitation in California, as it was presented by the railroad. At intervals of six miles there were section houses, in which were lodged the section gangs, at that time all Chinese. The foreman, who was generally an Irishman and had a house of his own, was responsible for the upkeep of the track in his section, the Chinese doing the work under his orders. We questioned several of these foremen regarding the efficiency of their men and received substantially the same answer from all of them, to the effect that the Chinese were steady and faithful, but lacked physical strength; it took two of them to do a white man's work. The section hands were eager to supplement their pay by doing laundry work, and often solicited custom from us with the stereotyped question: "Catch'um shirt?"

At Rock Springs, where the railroad had large and active coal mines, we found water so scarce, that we had to pay twenty-five cents a head for our horses. There we left the railroad and struck off to the northwest on a three-days march to the Green River. Our first camp was in a grove of fine cottonwoods, which looked very beautiful in our eyes, so long deprived of the sight of a tree. The broad, swift river, the great trees and verdant thickets and green grass seemed marvellous in their contrast to the desert landscape which we had been looking at so long.

The desert has its own beauties and fascinations, chief of which are the wonderful atmospheric effects of changing lights, as the sun runs

through his daily course. When the sun is high, the landscape, especially in the bad lands, is hard, grim and forbidding; but, as he inclines toward setting, a wonderful, soft haze begins to appear, of the most delicate violet tint, especially vivid in the shadows. The landscape is transformed and it seems incredible that it can be the same scene in that magical light, as it was in "the burning of the noontide heat." Most wonderful of all are the sunsets, every day individual and different, every day magnificent beyond description. I shall make no attempt to describe them, further than to say that not only the west, but the whole sky is ablaze and every cloud a flame of colour.

For some reason that I have forgotten, we kept on up the east side of Green River, probably in quest of something of which we had been told. Whatever it was, we failed to find it, but we did discover a mineral spring, which completely eclipsed the famous Hunyadi Janos in efficacy. We also ran into an adventure that might well have had fatal results for Osborn. He had gone out from camp on foot and had been seen by some range cattle, which had immediately begun to close in on him from all sides, with the intense curiosity which these half-wild cows share with the Prong-buck. The danger under such circumstances, and it is a very real one, is of being trampled to death. Happily, several of us rode up in time to rescue our comrade, for the cattle know very well what a mounted man is and they fled at sight of us.

As the river was quite low, we undertook to cross at one of the fords and did so with every possible precaution. The Green River is notoriously treacherous and the toll of human lives which it took, in those days, was quite appalling. The men cut a cottonwood log, of about eight inches in diameter, into four blocks, each of which was notched, to hold it firmly in place. These blocks were put under the wagon box, at the four corners, raising the wagon-bed so far above the level of the water that the bedding and provisions were kept dry, when fording the stream. We made the crossing without accident, Joe riding ahead to feel out the bottom, and were all relieved to be safely over the treacherous water.

From the crossing we continued to the northwest, following up Ham's Fork and it was here that we staged our great attack from the Indians, which was so successfully repulsed and hence has always been known, among initiates, as the "Battle of Ham's Fork," a name conferred by the victim himself. When the smoke of battle had cleared away, it came on to rain and we had the only rainy night that I ever met with in Wyoming; the great tarpaulin justified its existence. An-

other unique experience of that night was a lunar rainbow, the only one I ever saw. It was a pale ghost of a rainbow, but perfectly distinct and standing out strongly against the black clouds.

We followed up Ham's Fork almost to the Idaho line and there we found what we were in search of, a fine exposure of the geological formation known as the Green River Shales. They are very finely laminated and resemble the Florissant shales which we had exploited the year before in Colorado, but they are pale buff, instead of grey and, geologically speaking, are very much older. Tearing out large blocks of the rock with pickaxes, we would split them with tableknives into plates of half an inch, or so, in thickness and almost every slab had fossils on it. The Green River Shales are famous for their beautifully preserved fossil fish, but leaves and insects are also abundant. We secured a fine collection of these exquisite fossils and then began to think of turning homeward. Reversing our steps, we reached the railroad and followed that to Church Butte, where we turned southward to Spanish John Meadow; there we found some beautiful fossils and I, strange to say, was the most successful.

Then we made a "pack camp" near the top of Twin Buttes, accessible only by a bridle path; nothing on wheels could come anywhere near it. It was by far the most beautiful camp that I ever had in Wyoming (except those in the snowy Absaroka Mountains in 1884) and I twice returned to it, in 1885 and 1886, and always with success in collecting. The double-headed butte is capped by a thick mass of coarse pudding stone, which causes the flatness of the top and makes the butte resemble the famous "kopjes" of South Africa, which played such a conspicuous part in the Boer War. Beneath this capping rock issued a spring of the clearest and coldest water which made a charming little oasis of grass and trees; first a grove of quaking asp and, below that, one of tall spruces. From the top of the butte may be had one of the wildest and strangest views that I ever beheld. Several thousand square miles of bad lands, from Pilot Butte, on the north, to the Uinta Mountains on the south. From that great height, the country looks like a vast relief map, but utterly dead and desolate, with no green thing in sight, save along the infrequent streams.

The homeward journey by train offered no incident worthy of a place in this chronicle. At Princeton I found many changes due to my Grandfather's death. My Mother and Grandmother had moved to Morven and my Uncle Arch had gone to his father's house. My plans were exceedingly vague, beyond the settled intention of proceeding to

England for further study, as was made possible by the generosity of Mr. Osborn. Dr. McCosh sent for me one day, I think, shortly before my graduation and said: "Mr. Osborn, Sr., has taken a fancy to you and writes that he would like to contribute $1,000 toward the expenses of your education in Europe." I replied: "I shall be glad to accept it, Sir, especially if it can be arranged to supply the missing income of my fellowship." Dr. McCosh assured me that that arrangement could be made.

Before sailing, I had a feverish week of preparation and kept flying from New York to Philadelphia and back again in bewildering fashion. Most important of these preliminaries was the securing of the necessary letters of introduction, professional and social. Dr. Leidy, whose reputation stood very high in Europe, gave me letters to the leading lights in science of London and, of these, incomparably the most useful and valuable was one to Professor Huxley. Dr. Fred Dennis, of New York, gave me a letter to Dr. J. G. Glover, one of the editors of the London *Lancet* and this introduction was of unusual importance, for Dr. and Mrs. Glover received me with the utmost hospitality and kindness, and their lifelong friendship I count as one of the high privileges of my career. Another letter which led to very interesting and pleasant results was one to Mr. John Welch, American Minister to the Court of St. James's.

To leave home and country and fare forth by myself, for uncertain ends and indefinite times, was a severe wrench and as I went from house to house bidding the various members of the family good-bye, it seemed like preparing for my own funeral. One such scene, however, was lighted up by a gleam of humour. It was at my Uncle Wistar's house, where the children were having their supper, that my Uncle asked: "What are you going to live on in London? You'd better marry a washerwoman and let her support you." Before I could answer, one of the children, a little maid of four, piped up with: "Oh! no, Papa, he'll be a Britisher then and he can steal." The older children were having American history at school and that was the sort of thing they were getting out of it.

The day before I sailed, at Osborn's suggestion, "The Triumvirate" had a group photograph taken in Western costume and armed with rifle and revolver. It was a very Wild Western picture, but the effect was rather spoiled by our small and neatly blacked shoes, while our clean-shaven faces and my smooth hair (I had no hat) gave us an appearance like that of the pirate, who was "as mild a mannered man as

ever cut a throat." A copy of this group followed me to London and I showed it to G. B. Howes, then one of Huxley's assistants, subsequently his successor. He looked at it, turned it over and said: "Taken in New York, I see: is it the custom to carry arms in New York?" "Heavens man!" I said, "do you think we dress like that in New York?" "Well, I didn't exactly know." Howes was a sly rogue and I never felt sure whether he was as ignorant of things American as he pretended, or was merely pulling my leg. Sixty years later that photograph was made use of as the frontispiece of the second edition of my *Land Mammals*.

CHAPTER EIGHT

LONDON—IN HUXLEY'S LABORATORY

I SAILED from New York on the S. S. *Italy,* of the long defunct National Line, whose steamers were mostly slovenly and rat-ridden, but they were cheap and went directly to London. The voyage was very tedious, thirteen days, but not otherwise unpleasant, for we had only a couple of rough days. The small group of passengers were a scrubby lot, with two exceptions, an English naval officer and a young New York lawyer, Julian Davies, who became very prominent at a later time. Davies had had a nervous breakdown and was on his way to Egypt to recuperate. We became very friendly and had lodgings together so long as he remained in London, at 16 Charles Street, St. James' Square, just off the Haymarket.

The surgeon of the *Italy* took much interest in my somewhat nebulous plans and gave me advice which, though well meant, almost started me on an entirely wrong course. Nearly all the great vertebrate palaeontologists, Clift, Owen, Huxley in England, DeKay, Wistar, Harlan, Prout and Leidy in America, had all begun their careers by studying medicine. Cope and Marsh had not, but they had worked at French and German universities respectively. I did not intend to take up a medical course, but I did suppose that my first step ought to be a thorough grounding in human anatomy. The ship's surgeon thought so too and advised me to enroll as a pupil with a teacher in Russell Square, who devoted himself exclusively to instruction in anatomy. I took this advice and waited on the anatomist and almost committed myself to joining his class.

It was a fortunate circumstance that, before definitely agreeing to work with the anatomist, I called upon Professor Huxley and presented Leidy's letter of introduction. As soon as "the eminent man" (as we nicknamed him in the laboratory) learned what I was dimly striving for, he promptly made up my mind for me and said: "What you ought and need to do, is to come here to South Kensington and take my

course in the Royal College of Science." I had enough of good sense to follow this advice and then my troubles were over, for I had put myself into thoroughly competent hands and every step in my European education was taken by Huxley's advice.

This fortunate turn was very much more "by good luck than good management." As I look back, I am fairly aghast at the foolishness of my whole scheme and I am wholly at a loss to understand how such experienced and sagacious men as my uncles, Dr. Guyot and Dr. McCosh, all of them deeply interested in my welfare, could have sanctioned so absurd a plan. I, a boy of twenty, who had never in his life been away from home entirely on his own responsibility, was expected to start out with no definite destination. Nor was any institution or teacher agreed upon in advance; even the subject of my studies was left entirely vague. Practically, I was told: "Go to England and study something with somebody, and then go on to Germany and study something else with some other body," as Dr. McCosh would have said. That this absurd undertaking should actually have worked out so well was due to no one's wisdom or foresight, but to the happy chance of Leidy's having given me a letter to Huxley and my having presented it promptly after my arrival in London.

Social life also began for me in London; I had had almost no experience of the kind at home. Immediately after our arrival Davies introduced me to a family of his friends, who were very hospitable and entertained me on many occasions at dinner and receptions until I went to Cambridge. The society that I met at this house, though including several people of title, struck me as altogether philistine and devoid of any intellectual life. On one occasion, I mentioned the name of Professor Huxley and nobody seemed to know whom I meant; finally, a woman exclaimed: "Oh! yes; that's the man who rides in the Park, carrying an umbrella over his head." Here, too, there was a worship of rank that went much against my stomach and, in Osborn's words, when I took him to a reception there: "This is like a page out of Thackeray."

I don't wish to seem guilty of the unpardonable sin of laughing at people who were kind to me and whose hospitality I accepted. I am merely reproducing the impression made upon me by a particular circle in London. I saw many others, scientific, professional, business; all of them middle class, for of fashionable society, I saw nothing at all. Nor did I meet many of the literary and artistic folk, though I was frequently greatly amused by the posturing of the aesthetic crowd,

which was then at its height of development and was so delightfully satirised by Dumaurier in *Punch* and by Gilbert in *Patience.* I have been mystified by the success of the revivals of *Patience,* for the present generation knows nothing of the follies of Oscar Wilde and his disciples and, I should think, must fail to understand Gilbert's wit.

The society of the commercial people I did not much care for. I had always thought that the feeling against "trade," so much dwelt upon in the English novels of my youth, was a mere prejudice, but I saw much to justify it and I did not find "the noble British merchant," whatever his sterling qualities, socially attractive. Nevertheless, I heartily enjoyed the dinners and receptions which I attended, especially the dinners, a form of entertainment of which I had had no previous experience. It was all so new and strange and spiced by the feeling of being "abroad," in a foreign country, which made it a delightful adventure. Naturally, it was among the scientific people that I had the pleasantest and most memorable encounters, frequently with men of world-wide fame, who cordially welcomed the aspiring neophyte.

Thanksgiving dinner, at the house of Mr. Welch, the American Minister, was a notable occasion, especially to a boy almost on the verge of homesickness, from which he was preserved only by continuous hard work. A large party of Americans was assembled there that evening, including several college friends and army officers who knew my kin, and this feature made the gathering very homelike. Miss Emma Thursby, a famous soprano of that period, delighted us all with her singing. When I went to pay my dinner call, I was thrilled to find talking to my hostess, Mr. James Bryce, of Oxford. Though it was then many years before he wrote *The American Commonwealth* and still more before he became the most popular of British Ambassadors at Washington, I knew his *Holy Roman Empire* almost by heart.

I must set down here an encounter with Mr. Welch's butler, to which only Thackeray could have done justice. Miss Welch had asked me to undertake some small commission for her, the nature of which I have forgotten, and one day, at the laboratory's noon recess, I walked the short distance, to report progress. I found the butler sunning himself on the front steps, a thing he couldn't often do in December. In reply to my inquiry, whether Miss Welch were at home, he said: "No, sir, she is not." "Can you tell me when she will be home?" "No, sir, I cannot; her movements is very precarious." Like David Copperfield with Mr. Littimer, I felt very young.

The social event to which I have always looked back with the greatest pleasure was the New Year's dinner at Huxley's house in Marlborough Road, St. John's Wood. Some days before the Christmas holidays began, and after a meeting of the Royal Society, the great man came up to me and, putting his hand on my shoulder, said: "What are your plans for New Year's Day?" "I haven't any, Sir." "Then come and take dinner with me, won't you?" "Thank you very much, Sir, I shall be delighted." This, every one assured me, was an unprecedented honour.

A very distinguished company was assembled when I arrived at the house, of whom I remember Tyndall, the great physicist; Lecky, the historian; Rivière, the painter; and Smalley. The latter was the London correspondent of the New York *Tribune* and a very prominent man in his day. Tyndall I thought a remarkable snob, who could talk of no one without a title, until the ladies had left the table, when he came around and sat down by me, to inquire for Clarence King and other American friends, when he made himself very pleasant.

Tyndall was undoubtedly a great man and Americans are especially indebted to him for the remarkable renascence of physics which his lectures in this country brought about. Nevertheless, he had a decided streak of the charlatan in him and was unduly greedy of applause. The following anecdote came to me from Huxley's assistant, to whom it was told by Tyndall's assistant and, therefore, it is on excellent authority.

The eminent physicist was giving a public lecture at the Royal Institution and was standing in front of the long lecture-table, covered with apparatus. On the other side of the table an experiment was in progress; turning to look at it, the lecturer noted that it was going wrong and needed instant attention. Instead of taking the time to run around the end of the long table, he stepped back and took a flying leap over it, amid a tumult of applause from the audience, and set the experiment right. The *mise en scène* had been carefully prepared, the experiment arranged to miscarry and the leap practised for a week beforehand. For all I know to the contrary, this tale may have been a spiteful invention, but, at least, it shows what sort of thing which people who knew him were willing to believe of Tyndall. No man in his senses would have invented such a yarn about Huxley.

After the dinner there was quite a large New Year's reception. I was talking to Mrs. Huxley, when I noticed an uncommonly handsome girl sitting on the corner of a table across the room. Her face was oddly familiar, yet I felt very certain that I had never seen her before. After

puzzling over the problem for a moment, the answer suddenly came. Turning to Mrs. Huxley, I said: "Doesn't that girl over there on the table remind you of Millais'. 'No'?" To which she replied: "How very amusing! that *is* Millais' 'No'; it was painted from her." The young lady in question was Miss Tennant, who afterward married Henry Stanley, the African explorer.

While, in general, I met with only kindness and courtesy from my English hosts, I encountered, in some few instances, astonishing rudeness. For instance, to a young lady whom I took down to supper one evening, I narrated an adventure which I had had in the West. She said in surprise: "Surely, that didn't happen in England?" "No," I answered, "it happened in Colorado; I'm a Yankee, you know." "No, I never should have thought it. I like American men very well, but American women are all very loud and vulgar, don't you think so?" I wanted to say, but I didn't: "I don't regard my Mother and sisters loud and vulgar at all." To be sure, I had no sisters, but my sister-in-law would have done in a pinch. Some patronage and something of the condescension which Lowell noted in foreigners I did meet with but it was kindly meant.

A fellow student in the laboratory lived at Harrow and twice I spent week-ends (the term wasn't in use then) in his mother's house. That was my first experience of the beautiful English countryside and, though it was winter and the trees were bare, I found it very delightful. At dinner there I met the only man I have ever known who was certain that he had had experiences of the supernatural. He was a naval officer, not at all of the type which would be subject to hallucination, or even especially imaginative. He had been stationed off the north coast of Ireland and frequently visited a house which was reputed haunted. The experiences of himself and his brother officers in that house were certainly very surprising and, if they were due to fraud, it was trickery of the most skilful description.

My life in London speedily assumed a steady, routine character, with hardly any visiting of theatres, concerts, or such public entertainments.

The great scientific societies of London, such as the Royal, the Zoological and the Geological, were a source of unending interest and pleasure, all the more because of their entire novelty in my experience. Various friends opened the meetings to me and I attended with considerable regularity. Of my first visit I wrote in a letter home: "On Wednesday evening, at Professor Judd's invitation, I attended the meeting of the Geological Society, which I thoroughly enjoyed, both

on account of the exceedingly interesting papers which were read and on account of the men of world-wide fame whom I saw and even met after the meeting, as we partook of coffee and cake" in the smoking room. "I was very much surprised at the acrimony and personality of the discussions. Nearly every one who spoke called his predecessor all kinds of bad names, couched in rather polite language." It was in these informal gatherings at the coffee table that I had the most enjoyable experiences, having the privilege of meeting the men of highest distinction in English science. This was especially true of the Royal Society, where not only the biggest scientific guns did foregather, but also where the coffee was good, *mirabile dictu*.

Huxley closed his lectures on February 17 and, though I continued to work in the laboratory, I moderated my pace, especially as Dr. Glover assured me that I had been working too hard and must relax a little. I therefore accepted more invitations and went out more in the evenings. Mr. Charles G. Leland, better known, perhaps, as Hans Breitmann, was then living in London and, as a fellow Princetonian, he was very hospitable to me. Saturday evening there was a regular *salon* at his home and I have seldom met a more charming circle of people than used to gather at Mr. Leland's. In one of my letters I wrote: "It is the thing in London to collect all sorts of 'lions' at your house, in order to attract people thither. Mr. Leland is trying desperately hard to make a lion of me, by telling the wildest stories about my thrilling and terrible adventures in the West. So far, I rejoice to say, he doesn't seem to have met with much success."

On one of those evenings, there were present a couple of very real lions, Professor E. H. Palmer and Captain Burton. Palmer, who was killed by the Bedouins in Egypt, three years later, was then professor of Arabic at Cambridge. When Arabi's revolt against the Khedive broke out in 1882 and the British bombarded Alexandria and invaded Egypt, the Government sent Palmer, who had great influence with the desert tribes, to pacify the Arabs, but the experiment ended fatally. Palmer was a great friend and admirer of Burton's and told me several stories about him. Burton, with Captain Speke, discovered the Central African lakes and the sources of the Nile and had made a famous journey to Mecca, in the disguise of a pilgrim from Cairo. I had read his book on that perilous enterprise and was charmed to see the hero of it in person. His translation of the *Arabian Nights* had just been made when I saw him.

While all this mingling with society was an interesting distraction, welcome as a change from hard work, it was only the fringe of my

London life; the substance of it was in the South Kensington laboratory. Every morning, at ten o'clock, Huxley appeared on the dais and began his lecture, which usually lasted an hour and a half. As a classroom lecturer, I have never known his equal; the clear, beautiful style, for which his writings were famed, was equally characteristic of his lectures and he spoke with unhurried, but unhesitating fluency. Though he wrote what he was going to say, he spoke without notes and he was a remarkably good blackboard draughtsman. He was the only man I ever listened to who could give me a very fair idea of an animal that I had never seen.

When an undergraduate at Princeton, I had devised a method of rapid note-taking that enabled me to record the entire substance of a lecture, provided that it were written out the same evening, when memory could supplement the notes. It was a laborious undertaking to write twenty or thirty pages every evening, no matter what the evening's engagement might be. In Huxley's course I filled eight notebooks, which I afterwards had bound into two fat volumes. Towards the end of the course, the lectures kept getting longer and longer, until they passed the two-hour mark. After the course was over, I met the "eminent man" on the stair one morning and he asked me: "Do you make a fair copy of your notes?" "Yes, Sir, always." "Well, would you mind letting me see your notes for the last few lectures? I haven't written them out and I should like to see what I have actually been saying." Needless to say, I felt immensely complimented and hastened to comply with the request. Those notes, with additions and corrections from Huxley's own hand, are among my most cherished possessions.

From eleven-thirty to one and from two to four, we were at work in the laboratory, dissecting, working with the microscope and making drawings. At irregular intervals, the Professor himself made a tour of the laboratory, stopping at each man's table, examining and commenting on his drawings and answering questions. The demonstrator, who was always present, was T. J. Parker, a son of the eminent anatomist, W. Kitchen Parker. "Tom," whom every one liked, afterwards went to New Zealand as a professor in the University of Dunedin and died very prematurely. G. B. Howes, of whom I have previously spoken as the successor, first of Parker and then of Huxley, was the extremely skilful preparator and artist of the laboratory. He and I developed an intimate friendship. The course was, in all respects, admirable and the method was brought to this country by H. Newell Martin, of Cambridge, who

had collaborated with Huxley, and became professor in Johns Hopkins University, whence it spread to other institutions.

The class seemed hardly worthy of the teachers, being mostly made up of young men who were "going in" for the certificates of science-teachers in the Board Schools. To the best of my knowledge, there were only two men in the class who afterwards distinguished themselves. F. E. Beddard, F. R. S., who was for many years prosector of the Zoological Society of London, was at that date an undergraduate in Oxford with leave of absence to take Huxley's course. A. G. Bourne, of University College, London, was also an outstanding man. As to a third man Bose, an Indian, I am uncertain. A man of that name in India subsequently attracted much attention by his plant experiments, but I do not know whether he was the same.

Saturday afternoons we had to ourselves and I usually spent the time in the British Museum working with the fossil mammals. Till 1881, or thereabouts, the natural history departments were kept in the old building in Great Russell Street. Sir Richard Owen was then the head of the scientific departments and Dr. Henry Woodward, F. R. S., was the keeper of the geological collections. Dr. Woodward was especially kind and helpful and I kept up my friendship with him until his death. A room was assigned to me, which I shared with Baron von Ettingshausen, a distinguished German palaeobotanist. Poor Ettingshausen could speak very little English and was almost helpless; even my halting German was like manna in the wilderness to him.

I had letters to Owen and Woodward and almost immediately found that I had slipped into a British version of the Marsh-Cope controversy; the Owen-Huxley feud was carried on in much the same spirit, though in somewhat more decorous form. Owen had taken the anti-Darwinian side in the great debate and he was extremely jealous of Huxley's rising reputation, for he had so long had the field of comparative anatomy and vertebrate palaeontology to himself, that he could ill brook a rival. Consequently, there had been many clashes between them and much hard feeling on both sides. On one occasion, Huxley had said, in referring to Owen's views: "Oh! why slay the thrice-slain?"

Owen took the first chance that offered to retaliate and the following version of his remarks is one that Kitchen Parker gave me. It was, if I remember rightly, in replying to a toast at a public dinner, that Owen said: "There was once a great and beneficent giant, who harmed no one and did much good, and there was a little man, a very little man, who was filled with envy of the giant and sought to injure him,

but could not because he was so little. While he was pondering some way to destroy the giant, he heard a voice from heaven saying, 'Slay!' and again 'Slay!'; and a third time 'Slay!' Gentlemen! I still live."

This tale sufficiently illustrates the state of feeling between the two men, though each of them, in my hearing at least, always referred in courteous terms to the other. Owen was already an old man, when I was in London, and stood in a very isolated and pathetic position. His friends and partisans were nearly all dead, the younger generation had turned away from him and, among the men whom I met in London, there was not one who was on Owen's side of the controversy. Notwithstanding all this, Owen was unquestionably a great man and, as my letters show, he made a profound impression upon me, for I had long been familiar with his work.

When the course was concluded, I asked Professor Huxley whether I should take the examination and he immediately replied: "No, don't do anything of the sort. Examinations are a necessary evil and they're not meant for men like you, serious students who know what they want." I was, therefore, free to devote my time to embryology, a subject of which I knew nothing, but which I was most anxious to learn. In those days, embryology completely dominated biology and was the stern arbiter of all morphological theories. For the next two months, therefore, I continued to work in the South Kensington laboratory with Parker and his brother, W. Newton Parker, who had been teaching in the University College at Aberystwyth in Wales. Then, as always, at Huxley's advice, I went to Cambridge, to continue my embryological studies with Francis Balfour, who was then the foremost embryologist in Europe.

Mr. Osborn, Sr., once said to me of my life in London: "You denied yourself everything," for he knew all about my expenditures. This conception surprised me, for I had not thought of my economies in that light. A year, at least, in Germany was essential to my plan and my Mother was to join me there. I had therefore, to save as much as possible to help finance the German residence. I still have the account books in which every item of expenditure during my stay abroad was entered every night before going to bed. After a couple of months in my first lodgings, I discovered that Charles Street was in an expensive region and, by moving to Beaufort Street, Chelsea, I got more comfortable quarters for much less money. After that, I paid twelve shillings a week for my lodging and, for an additional weekly charge of three shillings and six pence, my landlady gave me the bread, butter,

and coffee which formed the breakfast that I preferred. For luncheon a roll and a glass of rich milk were quite sufficient and, for a shilling, I got an entirely adequate dinner. Sometimes, I dined in the grill-room of the South Kensington Museum, but, more frequently, at a little restaurant in Piccadilly Place, of which I learned in Baedeker.

Partly to save bus fares, partly for the exercise, which I could get in no other way, I did a great deal of walking, and my usual plan, if I were not going out to dinner, was, after the ending of the laboratory work, to walk up Knightsbridge and Piccadilly to the Scientific Club, in Savile Row, where Dr. Woodward had put me up, and write there till dinner time, which was usually at eight. After that, I walked to my room, or returned to the Club, for the evening's work. Of public entertainments, I attended almost none; three or four visits to the theatre in London and hearing Beethoven's Ninth Symphony in Cambridge, comprise the list. It was not only from reasons of economy that I avoided amusements, but also because I was working hard and steadily and was unwilling to give the time that theatre and concert hall would have taken.

Living in this careful way, my monthly expenses in London were from thirty to forty dollars, not including clothing and footwear, which, of course, were bought but seldom. After I had gone through a series of heavy colds, I became acclimated, in some degree, and throve exceedingly on my Spartan fare. That winter, 1878-1879, was an unusually cold one, with an abnormal quantity of snow and ice, and I suffered much because of the ineffective heating appliances and was never really comfortable except in bed. Nevertheless, I was very happy and contented in my work and in the kindness and hospitality which I met on every hand. In particular, Dr. and Mrs. Glover were so unweariedly kind that I came to look upon their house as a second home and felt for them an affection, such as I have rarely had toward people outside of my immediate family. So long as those dear people lived, I counted them among my warmest friends.

I became very much attached to London, the only great city in which I ever lived, except for the two years of infancy in Chicago, and the attachment has remained throughout life. I always rejoice to go back to "the biggest and best of cities," but, latterly, the rejoicing is much tempered with sadness for the loss of so many dear friends. In my scanty leisure I made such study of the gigantic city as my time permitted, always having a map in my pocket and either walking, or riding on the top of a bus, so as to see where I was going. In this fashion

I acquired a knowledge of London, which though necessarily superficial, was yet more extensive than that of most Londoners. I was often amused by having the born Cockneys in the laboratory come to me to inquire how to reach some place that was outside of their ordinary beat.

What manner of place was the London of sixty years ago? Needless to say, it has undergone very great changes since then, both in outward aspects and in the manners and customs of the natives and these changes are almost all improvements. In spite of continual, unremitting efforts to keep it clean, the London of that period was a smoky, grimy, dirty place. Many of the principal streets, such as Piccadilly, were macadamized, like country roads, and when the rain fell, as it usually did, such streets became covered with thin sheets of liquid mud, which was speedily trailed over the sidewalks. Even in the asphalted streets, such as Oxford Street and Holborn, which looked immaculately clean in dry weather, were converted by a few minutes' rain into surfaces of greasy slime, which was destructive to shoes and trousers. The immense multitude of horses added greatly to the difficulty of keeping the streets clean.

The fogs, the "atmospheric pea soup" for which London has long been famous, were then more prevalent than they are now and I went through a great many, though none were so bad as to hold up the traffic entirely. Our laboratory, at the top of a high building, rising far above the surrounding houses, was yet so dark in winter that, for more than half the time, we had to burn gas all day. Sun, moon and stars retired altogether from sight, so that I actually forgot all about them and, on one exceptionally clear night, I mistook the full moon, seen over Green Park, for an illuminated clock face. The first time I saw the sun in 1879 was on February 4. This all sounds very bad, but it was not. Being fully and happily occupied, I cared nothing for the weather and when it rained, I did "as they do down South and let it rain."

Certain aspects of life in London I found distressing beyond all words. The squalid poverty and drunkenness that one saw on every hand and on such an enormous scale were heartbreaking. Except in Glasgow and Birmingham in 1875, I had never before encountered anything so appalling. Above all grievous, were the multitudes of wretched little children, pale, anaemic, with faces and hair literally encrusted with filth. In my later visits (1912 and 1926) I have been kept too exactingly occupied to visit the East End, but in the districts which I did see, there

was no such distress visible as there had been in my student days in those same districts.

An even more striking improvement is in the behaviour of the street women, who used to swarm in multitudes at dusk and far into the night in the more populous streets. They accosted the passer-by in the most shameless manner, even going so far as to lay violent hands upon him and without the least interference from the police, who looked on with tolerant amusement. Coming from Harrow one night, I arrived at Euston at 1 a. m., when no cab or omnibus could be had, and I was compelled to walk to my lodgings. When I reached Piccadilly Circus, I found the Circus, Regent Street and the Haymarket packed solid by these unfortunate women, one of the most dreadful sights I ever beheld. I do not know that London has become any more moral, but certainly it has become much more decent outwardly than it was then.

Politically, the year of my life in London was uncommonly interesting. Beaconsfield's great administration (his last) was already on the downward slope that led to the tremendous overthrow of 1880. A few months before my arrival, Lords Beaconsfield and Salisbury had returned home from the Berlin Congress, bringing with them "peace with honour," which the Liberal press ridiculed as "that strange compound." Hostility to Russia was still running high and strong and the song which gave the "Jingoes" their name was still popular in the music halls. "We don't want to fight, but, by jingo! if we do, We've got the ships, we've got the men, we've got the money too."

That winter, there was considerable excitement over the elections in the Zoölogical Society, the candidates for the presidency being the Prince of Wales and Professor W. H. Flower, of the Royal College of Surgeons. I think most people were surprised that Flower was elected, even though they disapproved of the Prince's nomination as being nothing but sycophancy.

Before leaving London, I must record one final experience, which was described in a letter: "The eminent man met me on the stairs of the museum and told me he was going to lecture at the Royal Institution on Friday evening and, if I would like to go, he would give me a ticket, saying, as he handed it to me: 'You needn't listen to the lecture, but you ought to see the people; it's one of the sights of London.' It is, indeed, the swell thing to attend these Friday evening lectures. The doors open at eight and, ten minutes before the hour, an immense crowd is collected at the door and, by half-past eight, there isn't a seat to be had for love or money. I was very much interested in watching

that most aristocratic crowd, as they pushed and hauled and yelled, behaving very much like the audience of a three-penny music hall. When seated, they made a fine show, as most gentlemen and all ladies came in evening dress. . . . The lecture, I am sorry to say, was far below Huxley's usual standard. . . . Parker told me it was the second worst lecture he had ever heard him deliver." I must have taken Huxley's advice and not listened to the lecture, for I can remember nothing about it, except my disappointment.

CHAPTER NINE

CAMBRIDGE

PROFESSOR HUXLEY, who had advised me to go to Cambridge and continue my embryological studies with Balfour, gave me a letter of introduction to Michael Foster, the distinguished professor of physiology at Cambridge. This letter I had forwarded by mail and, in return, received a very kind letter from Dr. Foster, inviting me to make a preliminary visit and be his guest at Shelford. A blockade on the "Underground Railway" made me miss my train at King's Cross and, when I finally reached Cambridge, Foster had gone to London. To quote from a letter of March 20, 1879: "I set out for Trinity College, in the faint hope that Foster might have mentioned me to his colleague Balfour. This, to my great joy, I found to be the case and I met with a most kind and courteous reception. Balfour took me all over the place, showed me all the sights and introduced me to all the swells. As usual, everybody treated me with marked attention, my nationality being an almost sure passport to favour here."

I lunched with Balfour in his rooms and dined with him in "Hall," ending a memorable and delightful day and beginning an admiration and love of Cambridge that are as strong now as they were sixty years ago. We love the places where we have been happy and so, in all Europe, the places for which I have a sincere affection are London, Cambridge and Heidelberg; other places were interesting, or beautiful, but they did not make a personal appeal to me.

An event of the first order of importance to me was the coming over of Osborn to join me at Cambridge.

Our position at Cambridge was somewhat anomalous, as we were not in *statu pupilari* and were subject to no rules, nor were we members of any college. Rather, we were privileged guests of the University, to whom all facilities were thrown open. Though we worked very hard, our toil was lightened by much charming hospitality and we made many friends, very few of whom are left alive. Balfour, in par-

ticular, was always inviting us and my diary is filled with entries of luncheons and dinners in his rooms or in Hall, but we were also entertained in King's, Christ's, John's, and Magdalen Colleges. Oscar Browning, a Fellow of King's, was then and for many years afterward, famous for his hospitality and in his rooms we met Oscar Wilde, who made himself very disagreeable and I "wrote him down an ass." He was then in the stage when Gilbert ridiculed him and the whole aesthetic movement in *Patience*; his abilities as a writer were not yet known.

Two lasting friendships that we made that spring in Cambridge were with Professor Alfred Newton, a famous ornithologist, and Adam Sedgwick, then a lowly B. A., who was Balfour's assistant and eventually his successor. Newton, already white haired, was also a fellow of Magdalen College and his friends used to gather in his rooms on Sunday evenings. Sometimes these gatherings were quiet, even dull; more commonly, the talk was brilliant and fascinating. Until Newton's death in 1907, he continued to be one of my kindest friends. He was quite lame, but was a genial old soul, who loved a good story and had many of his own to tell. When the British Association for the Advancement of Science met in Cambridge in 1904, Newton invited me to be his guest at Magdalen during the meeting. I had not thought of going, until I received word from Cambridge that the old man really attached importance to my attendance at the meeting. "He keeps saying, 'I want Scott,' so do come." I felt compelled to go and had a memorable experience.

Some time during our stay in Cambridge, Newton expressed to Osborn his high appreciation of us both. Osborn said: "That's all very well, but yet you refuse to recognize our degrees," to which Newton replied: "If you send over many more men like you and Scott, we'll be compelled to recognize them." After more than fifty years Newton's prophecy remains unfulfilled and the ban is still maintained.

To Osborn and myself, Cambridge, in those days, signified chiefly Francis Maitland Balfour, to whom my letters refer so often. It was to work under his guidance that we had gone to Cambridge and it was his great reputation that had drawn Osborn out of his reluctant father's office and across the Atlantic. Though only twenty-eight at the time when we were with him, he was already the first embryologist in Europe, standing head and shoulders above all his colleagues. We heartily concurred in this verdict and agreed in thinking him the ablest man with whom we had ever been in association, not even

excepting Huxley. We heard many amusing tales of grave German professors who made pilgrimages to Cambridge to consult the embryological oracle and were scandalised to find a youth in white flannels playing tennis. All their notions of academic dignity and propriety were outraged. Nevertheless, they did not fail to appreciate at its true value the quality of his work. As a lecturer, Balfour lacked the ease and fluency and the beautiful English style which characterized Huxley's classroom lectures. His delivery was somewhat hesitating and repetitious, but his lectures were full of original and brilliant thought and we were heartily sorry when they came to an end.

Shortly after our arrival in Cambridge, Balfour suggested to Osborn and myself that we should investigate the embryological development of the Common Newt (*Triton taeniatus*), as the breeding season had arrived and spawn could easily be obtained. At that time no one had studied the development of the tailed Amphibia, while that of the frogs and toads was already well known. This suggestion was gladly adopted and, after collecting and preparing a sufficient number of the eggs, we made a careful microscopic study of the material. So much that was novel and important came out of these studies that we determined to write a joint paper for publication in the *Quarterly Journal of Microscopical Science*.

I don't remember whether this determination was spontaneous with us, or whether Balfour suggested it. At all events, he heartily approved of the plan and gave us all possible encouragement and assistance. In the limited time at our disposal, the preparation of this paper meant a lot of hard work, both in the writing of the text and making drawings for the plates. Happily, we were able to complete the task before leaving Cambridge and we read the proofs together in Dresden, the following August. The paper appeared, "according to plan," in October and would seem to have filled a "long-felt want," for it had a very favourable reception and, for several years, was widely quoted by investigators. An amusing illustration of this, which both pleased and flattered me, occurred in the summer of 1881, when I had gone back to Heidelberg, to finish the work which I began there in 1879. Davidoff, a young Russian who had been Professor Bütschli's assistant, gave a farewell *Kneipe* on the eve of his departure for Villa Franca. The invitation to me was addressed: "Sir W. Scott (ohne Osborn)." When I asked him the reason for this somewhat unusual form of address, he replied: "Oh! I am so tired of the everlasting citations of

Scott and Osborn, Scott and Osborn, that I thought I'd like to have you once without the verdammten Osborn."

Naturally, it was Balfour's social side, his extraordinary charm of manner, wit and brilliancy of conversation, that I especially dwelt upon in my letters home. For instance, I wrote: "On Monday evening, we took a quiet little dinner in Balfour's rooms, the only other guests being Sedgwick and his sister. She, the one lamb among four wolves, seemed to take it very quietly and, being evidently a 'society girl,' took care of herself very well and managed to keep all four of us rattling away like mad. I never saw Balfour shine so before; he was as lively and witty as he is always handsome. He and his brother (Gerald) are two of the handsomest men I have ever seen. They are nephews of Lord Salisbury's and 'howling swells,' yet they never give themselves the least assumption on that account." The oldest brother, Arthur, afterward Lord Balfour, I did not meet till nearly ten years later. On other occasions, the dinners in those so familiar rooms in Trinity would be for famous men of science and I made many pleasant and durable acquaintances there, notably Ray Lankester and H. N. Moseley, one of the naturalists of H. M. S. *Challenger*. The latter had just returned from the long voyage of five years and was preparing his famous book.

Osborn and I grew very warmly attached to Balfour and he seemed to return the feeling. At all events, he was most kind and hospitable to us. Adam Sedgwick, a nephew and namesake of the great geologist, idolized his chief and loved him with "a love passing that of women." Sedgwick was a very able man and rose to high places in English science, but I doubt if he ever recovered from the shock and grief of Balfour's death. Among his own kin, Balfour's memory is fresh and green to this day. In December 1924, Lord Cecil (formerly Lord Robert Cecil) had come to New York to receive the first premium and award of the Woodrow Wilson Foundation and, as one of the board of trustees, I was invited to meet him at dinner. In the brief conversation that I had with Lord Cecil, I found him very familiar with the career of his long-dead cousin and eager to learn all that I could tell him.

Never have I heard more delightful, stimulating conversation, or brighter wit than in the colleges of Oxford and Cambridge. It is not surprising that I should have forgotten specific instances and that the only one which I distinctly remember dates from a much later time, when Joseph Chamberlain was pushing his campaign for "tariff reform," as protection was euphemistically called. In an Oxford common room a party of visitors from Cambridge was being entertained and the

ever present topic of Chamberlain's proposals was under discussion. One of the visitors remarked: "You people ought to put a tariff on the science teachers that you import from Cambridge." Immediately one of the Oxford hosts retorted: "Oh! nobody is proposing to put a tariff on raw materials." I have always looked back upon my two months in Cambridge as one of the most interesting and charming episodes of my life, to say nothing of the intellectual benefits I there received.

As we had such a great deal to do in such a short time, we could see but little of the festivities of "May Week," though we accepted as many invitations as we could afford. I remember Michael Foster's coming into the laboratory, where we were the only workers present, and laughingly quoting Milton's "Faithful among the faithless found." The bumping races made a great impression on me from two quite different points of view; one was the picturesque sight of twenty-five eight-oared crews on the river, the moving masses of colour made by crowds of undergraduates in their flannels and blazers, running along the bank and cheering the crews of their respective colleges. The other was the comparative lack of enthusiasm on the part of the spectators. Great crowds went to see the races, but they seemed to be but mildly interested in the result. To this sane attitude our Eastern colleges are slowly approximating and when that is reached, we shall have all the undoubted benefits of athletics without the serious evils that afflict them now.

When the fêtes and examinations were over and most of the undergraduates had "gone down," there was a great day for the conferring of honorary degrees and we were so fortunate as to receive tickets to the Senate House. The ceremony was impressive in its simplicity; each candidate in turn was presented, in a Latin speech, by the Public Orator to the Vice-Chancellor, who then conferred the degree. The gallery was crowded with such undergraduates as still remained "up" and they were very noisy, loudly commenting on persons and proceedings in the traditional way. I was both surprised and amused to hear many people congratulate themselves on the orderly proceedings of the students, no doubt due to the fact that most of them had already left.

The list of men honoured on that occasion was a very distinguished one, comprising, as noted in my diary, Huxley, Leighton, Grove, Spottiswoode, Sorby, Browning, Stubbs, Smith, Newton, and Bond. I do not know whether the list is complete. Huxley was evidently the favour-

ite of the gallery, for he was greeted with thunders of applause that kept up for five minutes or more. Browning, I thought, had second place. In introducing him, the Public Orator used the words *in calorem* and instantly a voice from the gallery shouted: "For Heaven's sake, don't make him any hotter; don't you see he's *Browning* already?" a very swift impromptu. When Spottiswoode, President of the Royal Society was led out, some one yelled: "Name this child," which occasioned much laughter because of its absurdity, Spottiswoode being a splendid looking man over six feet in height. Grove was the Chief Justice, Sorby the President of the Geological Society and a man of the highest distinction, Stubbs the historian and Bond the librarian of the British Museum. Which Newton and which Smith were meant, I no longer have the means of determining.

In the afternoon there was a garden party in the gardens of King's College, concerning which I wrote: "Not a single element was wanting to make a perfect success of the affair. The day was lovely, the only fine day we had had in an immense time; the gardens are the finest in Cambridge, with turf like velvet and shady walks through the groves that were just made for flirtations. Then we had the choir come in and sing a lot of glees for us; the effect of the sweet, rich voices in the open air was indescribably fine. The assemblage of guests was a very brilliant one. All the swells who had taken their degrees in the morning and their families, the professors and fellows turned out in full force. The Huxley girls were there, of course, and I took the opportunity of renewing my acquaintance with them. No introductions were made and so I didn't meet any one whom I had not known before, but as, by this time, my English friends are numbered by the score, there was no lack of people to talk to. I was the more pleased to have been present, as the garden party is peculiarly an English institution and I wanted very much to see one."

Osborn had missed this joyous occasion, as he had gone to London to meet his family. He likewise missed a memorable breakfast at Michael Foster's house in Shelford, to which I was invited and where I once more met the Huxley family. I had a long conversation with "the eminent man" upon my plans and prospects. He wanted me to spend another year in London, but I said that that would not be practicable, if I were to have my year in Germany.

At the breakfast table there was a jolly crowd and lots of pleasant talk. The whole family combined to chaff Mrs. Huxley about her extravagantly high opinion of her husband. I recorded this conversation

in a letter written immediately afterward, but it would be a breach of confidence to reproduce it here, amusing as it was.

My Mother arrived at Liverpool on July 5 and I went out on the tender to the steamer, where I found her well and strong, but badly sunburned. From Liverpool we took the usual "American tour," Chester, Warwick, Stratford, and Oxford to London, where we spent a week.

From London, we paid a short visit to Cambridge and, while there, I walked over to Shelford to bid the Fosters good-bye. I found an American visitor there, who had come over by the Guion steamer, *Arizona,* first of the "ocean greyhounds," which had just created a great sensation by making the run between Queenstown and New York in a week. From Cambridge we made a hurried trip to visit the eastern cathedrals, Ely, Peterborough and Lincoln and then, returning to London, we went to Rotterdam from Harwich and stopped a few days in Holland to see something of Amsterdam, Leyden and The Hague. We were charmed with the country and the people, somewhat to our surprise, for we had been misled by Washington Irving's caricatures of the Dutch in his *Knickerbocker's History of New York,* which was written to ridicule the pretensions of the old New York families.

CHAPTER TEN

LEIPSIC AND DRESDEN

THOUGH our destination was Dresden, we stopped at Leipsic in order to see our friend, Dr. C. R. Gregory, who had been living there for several years and, after being naturalised, was appointed a professor in the University. He received us most warmly and strongly advised me to remain in Leipsic for the remainder of the semester and attend lectures every day as a means of improving my German. I also took many long evening walks with Dr. Gregory and he told me things, the full significance of which I did not appreciate till many years later.

One evening Dr. Gregory made a simple remark, the significance of which I did not grasp till years afterwards. "The Germans have an intense dislike of the English." I replied: "I am surprised to hear that; what reason have they for disliking them?" "The British Navy is too strong."

That remark aroused my interest, especially because of the affection for England which grew out of my student life there. During the remainder of my stay in Germany and in many subsequent visits, I kept my ears open for corroboration of Gregory's statement and of this I heard an abundance. I can compare the slow process of my enlightenment only to the putting together of a picture-puzzle. I cannot remember just when I learned that the real authority in Germany was the army. So long as Bismarck remained in power, he was able to curb the Great General Staff, though only imperfectly, and more than once old Moltke was too much for him. Until 1890, however, the political power of the army was mostly in abeyance.

The anti-British feeling began to grow, among the classes whose opinion was of importance, during the Franco-Prussian War and was strengthened by the events of 1875, when England and Russia interfered to stop the contemplated attack on France. Bismarck always denied that he meant to make any such attack and those who like may believe him, but if he told the truth, his own countrymen much belied

him. In 1879 and '80 the plan to put an end to the reviving military strength of France was an open secret which no one thought of denying. The hatred of England, for it already amounted to that, was deliberately fomented and propagated by the authorities, though almost always in such a way that the propaganda could be officially denied. I shall never forget the bitter contempt with which a young lady, a typical Junker of the influential circles in Berlin, once spoke to me of the "nation of shopkeepers" (Krämervolk). I was able to watch the subterranean course of the propaganda, like that of a mole, from small surface indications. But this is anticipating the story by many years. In the summer of 1879 I was made vaguely uneasy and caught a glimpse of something portentous, on learning that the Germans hated the British, because of their too powerful fleet. According to Bismarck, "Envy is a characteristic German vice."

Our next move was to Dresden, where, through the agency of our landlady, we secured very comfortable quarters in a family that had once been wealthy, but had lost their money. They occupied the whole of a house, set far back from the street in quite a large garden. The bare, painted floors struck me as the acme of discomfort, but that was only because at home the floors were completely covered with carpets and I found the same fashion in England. The family could be taken as representative of the upper middle class, educated and accomplished and agreeable. The head of the house was a good deal of a scholar and was then engaged in translating one of Marlowe's plays, sometimes coming to me for help which I could not give him. The *pensions* in which we sojourned in Leipsic and Heidelberg kept a table that was more or less adapted to foreign tastes, but in Dresden and, for part of the time in Heidelberg, we had the native cookery unadorned and we didn't like it. Raw fish and raw ham, a superabundance of grease, a paucity of vegetables and complete absence of fruit, were not at all to our liking.

Acting on Osborn's advice, I engaged a teacher, or rather two. Three times a week, a gymnasial professor came to my rooms and the other three days I went to Blasewitz for a lesson with his wife. Between the two I made rapid progress in the language, especially as I read no English and heard none, except of course from my Mother. Theatre and opera were extremely good and very cheap, so that I went very often, partly for the enjoyment of it, partly as a means of education in the language. The performances began at six o'clock and, in that northern latitude, were over before dark. Every day I wrote and received a

letter in German from Osborn, who had been spending most of the summer in a German family in Coburg. He gave my leg a tremendous pull by writing that he had fallen in love with a beautiful German girl. I wrote him a reply, full of interest and sympathy, only to be laughed at for my pains. He answered, with much truth: "If I had meant my news to be taken seriously, I should not have written it to you in German."

We had greatly enjoyed our life in Dresden and left it with sincere regret and at an earlier date than we had planned, for we wished to meet Osborn at Eisenach. He was on his way to London, where he entered Huxley's laboratory and took the same course that I had taken the year before. In writing to tell me of this decision, he suggested our meeting in Eisenach on September 24. This we did and had a delightful glimpse of him "for a day and a night and a morrow." We explored Luther's town together and especially enjoyed the Wartburg, even though I had not yet seen *Tannhäuser* and did not know what a great rôle the Wartburg plays in that opera.

We saw in Eisenach the house of Fritz Reuter, the great novelist, a name which did not mean very much to me then. I had no premonition of the many delightful hours which I was to spend over his books, especially his *Ut Mine Stromtid,* which I have read and reread many times and which I regard as one of the very greatest novels ever written, in any language. Often my German friends expressed surprise that I could read Platt-Deutsch with ease, but, to one who knows both English and High German, Platt offers no great difficulty and the way in which Reuter used it was so perfectly adapted to his style and purpose, that translation, even into High German, gives altogether unsatisfactory results.

CHAPTER ELEVEN

HEIDELBERG—THE PLÖCKSTRASSE

ON arrival in Heidelberg, we put up in a hotel and spent three days hunting for quarters. Finally, we took a six months' lease of a furnished flat at 93 Plöckstrasse, consisting of two bedrooms, a kitchen, and a living room—no bathroom, of course. Indeed, I never saw a bathroom in a private dwelling, whether house or apartment, in Germany. I asked a German acquaintance where I could get a bathtub. In great surprise, he said: "A bathtub! What do you want of a bathtub?" I replied: "I have the absurd habit of getting into it every morning." To this his annihilating answer was: "I never heard of anything like that. In summer we go to the river, but no one bathes here in winter."

Our landlord lived on the floor above us and his maid-of-all-work did the cleaning for us. My dear Mother had for years longed to have her own house once more and this little foretaste of independent housekeeping was a real pleasure to her, which had the advantage of affording her an unexacting occupation, which, with her zealous studies of the German language, kept her pleasantly occupied. She prepared a light breakfast and supper; our more substantial midday meal was sent down from our landlord's kitchen. And, oh! what stuff it was! That we lived through six months of it, without acquiring chronic dyspepsia, was part of the wonderful good luck that seemed to attend all our European undertakings. We took a walk every day, when the weather permitted, but I suffered from an insufficiency of exercise.

I waited upon Professor Gegenbaur and presented Huxley's letter of introduction and, the next morning, met him at the laboratory, where he showed me an immense collection of microscopic preparations, illustrating the embryology of the Lamprey Eel (*Petromyzon*), a creature which is far more primitive and lower in the scale than any fish. One of Gegenbaur's assistants, Dr. Calberla, had spent four years in collecting the eggs and cutting and mounting the serial sections, and had then died before he could do more than publish a couple of brief, pre-

liminary papers, which had greatly excited the interest and curiosity of the zoölogical world. Gegenbaur now proposed that I should take this wealth of preparations and write a series of papers, beginning where Calberla had left off. This was a magnificent stroke of good fortune for me: by thus falling heir to Calberla's scarcely begun work, I was furnished with a theme of the first order of importance, as it was regarded then, and saved several years in the collection and preparation of the material.

Calberla's tragedy was my opportunity and it would have been folly to reject it. Nevertheless, I have always felt compunction over the way in which I stepped into a dead man's shoes, though it could have been of no benefit to him, had I refused to do so. Of course, in my publications dealing with this material, I always gave Calberla all possible credit for his share in our joint undertaking, but I have always wished that I might have done all the work myself, though, to my knowledge, no one has ever made any objection to my use of the preparations.

Had it not been for this marvellous windfall, I should not, in all probability, have remained very long in Heidelberg, for my relations with Gegenbaur soon became exceedingly difficult and the only thing that enabled me to endure his studied rudeness and insolence toward me was the unparalleled opportunity which Calberla's industry and skill had given me. I felt that such a chance could not come twice in a lifetime and that I would go through fire and water to hold it, a determination which had the happiest effects from every point of view. I am exceedingly glad that I did not suffer myself to be driven away from the prey in which I had fastened my teeth. My friend and laboratory mate, Dr. Gadow, explained the "Pacha's" (our nickname for him) demeanour toward me as being due to his extreme dislike of my predecessor, also an American who, like me, had been a student of Huxley's and had presented a letter from that eminent man. Gadow declared that the Pacha was just trying me out, to see whether I were such another, or whether I had the pluck and determination to stick to my chance despite unpleasant features.

The course of events seemed to show that Gadow's interpretation was the correct one. My first interviews with the Herrn Geheimrath Professor Doktor Carl Gegenbaur (to give him his full title) were pleasant enough, but, soon after I had settled down to work, the trouble began. There were but three of us in the laboratory, Boas, a Dane, who has occupied for many years a distinguished position in Copenhagen, Gadow, a Ph. D. of Jena, and myself. It was Gegenbaur's habit to come

into the laboratory every morning, question each of us in turn and make the appropriate comments on our results since the preceding day. To me, he soon became positively insulting, said all the sneering, derogatory things he could think of, browbeating me for every mistake in German that I made (he knew English well, but would not permit any of his students to speak it to him). I shall never forget the wigging he gave me for saying that a certain structure which was visible in one stage of development, but not in the succeeding one, had disappeared (*verschwunden*). The expression was a perfectly proper one and the cursing "with bell, book and candle" which he gave me on account of my unscientific conceptions was merely seizing an excuse to make himself disagreeable.

I was not hurt by Gegenbaur's treatment of me; I did not care enough about him, personally, for that, but I was deeply angered and much bewildered. All the great teachers with whom I had studied, McCosh and Guyot, Huxley and Balfour, had been most kind and helpful and Gegenbaur's behaviour was altogether unintelligible. I soon drew into my shell and said just as little to him as I could, asked him no questions and answered his in the briefest possible form. This state of siege kept up for nearly two months, until near the end of November, when a sudden change for the better came and memory has retained a vivid picture of the day. That was a phenomenonally early and cold winter and, late one afternoon, the Pacha, Gadow and I were standing around the laboratory stove, vainly endeavouring to absorb a little heat.

After some desultory conversation, the great man remarked, with a laugh, that we really thought the Glacial Period must be coming back. Though brusque and sometimes rough, he was really a genial soul and we soon became warm friends and remained so to the end of his life. However, he never condescended to explain his early rudeness or its sudden metamorphosis into kindness. When I was coming home and went to bid him farewell, he showed real sorrow at parting; his voice broke and his eyes filled with tears and he had difficulty in controlling his emotion. This unexpected show of affection moved and gratified me profoundly.

What manner of man was Gegenbaur? Indubitably a genuinely great man, yet one little known or appreciated by the public, for he did no popular writing or lecturing. For some years, he was a professor at Jena, where he formed a close intimacy with Haeckel. As I told in a previous chapter, Huxley had said to me that "Gegenbaur was head

and shoulders above every one in Germany," yet I venture to say that, for every one who knew of Gegenbaur, there were a thousand that knew of Haeckel. His popular books, translated into all languages, and his noisy championship of Darwin had made him known throughout the world. Haeckel was a man of brilliant gifts and great personal charm, but he should have been a poet and not a man of science, for he lacked a regard for the truth. Balfour publicly protested against Haeckel's garbled reproduction of his (Balfour's) figures and I very soon reached the conclusion that Haeckel's unsupported statement was no proof of the accuracy of his observations.

I have never been able to understand the warm friendship between Gegenbaur and Haeckel, for Gegenbaur was honesty personified and would have despised, in any one else, the charlatan streak that showed in Haeckel. Indeed, he had small respect for most of his German colleagues and, in conversation with me, frequently said the most savage things about them. His manners were far from polished and, while I know nothing of his parentage, he impressed me as having come from peasant or artisan stock. He could not endure stupidity in any form and, with his commanding intellect, eminently sound judgement and habits of authority, he could make himself singularly disagreeable. He had a fund of dry humour and exercised it without respect of persons. Professor Stieda, an eminent histologist, in passing through Heidelberg, called on Gegenbaur and sent in a much soiled visiting card. When the visitor was taking his leave, the Pacha handed him back his card, with the cutting words: "Hier, Herr Kollege, vielleicht können Sie das wieder brauchen."

Gegenbaur had a great dislike of my friend, Kitchen Parker, of London, whom he accused of having taken, without acknowledgement, some of the technical terms which he, Gegenbaur, had devised. One day, in the laboratory, he worked himself into quite a passion on this topic and roared out: "Der Parker ist ein ganz gemeiner Kerl and you can tell him I said so." To any one who knew Parker this was ridiculous; not only was he the last man in the world to take credit that didn't belong to him, but he could not read a word of German and knew nothing of Gegenbaur's papers. I was still too much in awe of the Pacha to stand up to him in defence of Parker, as I wished to do and ought to have done.

Near the end of my first semester in Heidelberg, Gegenbaur and I were discussing some problem that had arisen in connection with my work and he said: "Have you seen Kupffer's paper on that point?" I

hadn't heard of it. "Well, go to the library and get it; I haven't read it myself, but Kupffer is a good man and I am sure it will help you." A couple of days later, he came into the laboratory and, without preface, began: "Read Kupffer's paper yet?" "Yes, sir." "What do you think of it?" "With all due respect to you, it is damn nonsense." He fairly sputtered in astonished protest: "No, no, no; impossible, impossible; Kupffer's a good man, I tell you." "Just let me tell you what is in it." "All right, do so." I gave a rapid but fair outline of the paper and the gist of it, when he burst out: "You're quite right, es ist verdammter Unsinn."

On another occasion, also à propos of some of Kupffer's views which I thought childish and at which the Pacha laughed heartily, he said: "The great trouble with scientific research nowadays is lack of organization. A man sits down and makes a cogwheel, polishes and lacquers it and makes a beautiful cogwheel of it; then he puts it on the shelf and waits until some machine is invented into which it will fit." That remark contains a great truth and I have often quoted it. Today, half a century later, great foundations, such as the National Research Council, have been established, in order to bring about the needful coordination, a need which the scientific problems of the Great War made so pressing.

When I was beginning to get significant results in my work, I was so imprudent as to write about them to zoölogists who were engaged in similar lines of investigation. Gegenbaur rapped me sharply over the knuckles for doing that, incidentally betraying what he thought of a sense of honour among his German colleagues. "You mustn't start cackling as soon as you have laid an egg," was the text of his advice. He was especially sharp with me for having written to Professor Götte, of Strassburg, whom he held in low esteem and referred to his pet ideas as "Götte-an idiocy." He said: "You were a great fool to write to Götte and you'll live to be sorry for it." His prophecy was fulfilled; on the strength of my letter, the Strassburg professor managed to drag me into a nasty little controversy, from which I escaped as soon as I could, but with ruffled plumage, to continue Gegenbaur's hen metaphor.

As a lecturer, Gegenbaur was much inferior to Leuckhart, to say nothing of Huxley; his written style was very difficult for any one who was not familiar with his terse, elliptical way of talking. As time went on, I grew to appreciate more and more the fine material and profound thought of his lectures and his skill as a blackboard draughtsman, but I never ceased to be annoyed by his slow, hesitating and

repetitious delivery. Heidelberg professors of that day not only attached no importance to ease and grace in speaking, but most of them actually disapproved of those qualities in the lecture-room.

Up to the outbreak of the Great War, Heidelberg was the seat of relatively very large English and American colonies. The English Church was well filled, often crowded, on Sundays, and there was a flourishing Anglo-American Club, made famous by Mark Twain's Fourth of July address on the *German Language*. I took pains to avoid this club and with so much success that I never so much as learned its whereabouts. I had determined, to the utmost of my ability, to master the German tongue and, to this end, I devoted myself to the exclusive cultivation of German and reduced English to the lowest possible minimum, avoiding, with the exception of my Mother, everyone who would try to talk English to me. There were plenty of warning examples, whom I met, or of whom I heard. One Englishman, who had lived in the place for fourteen years, hadn't learned enough German to ask for a pencil. Americans were no better and most of them never learned to speak German well.

Though this policy of mine meant the condemnation of my Mother to six months of almost solitary confinement, she approved of it, as she would cheerfully have accepted much greater hardship in the interests of my education. At the end of the period, when the lease expired, we decided that the regimen was too severe and moved to a pension on the river bank, where my Mother found congenial companions and was much happier, in consequence.

As previously mentioned, the winter of 1879-1880 in Europe was of phenomenally severe and long-continued cold. It was currently reported to be the coldest winter in two hundred and fifty years, as indicated by the fact that loaded wagons crossed the Lake of Constance on the ice, for the first time since 1629. The winter began before the middle of November and kept up, without intermission, till after Christmas. There followed a week's thaw and then came another six weeks of intense cold. Spring began before the end of February and it was the most beautiful and gradual spring that I have ever seen. It repaid us well for the hardships of the winter. Not only was the winter remarkable for the steady and long-continued cold, but for the intensity of it; for weeks the mercury hovered about 0° F. and sometimes dropped to —10°. This was the cause of great suffering, especially as the watermains froze in the streets and the plumbing in the houses.

Even the winebottles froze in the grocers' windows, often with fantastic results.

I settled down to work, as I had never worked before; I had an enormous task before me and very little time in which to accomplish it. At first, I had no thought of taking a degree, but letters from Dr. McCosh, Sloane and Libbey represented it as imperative and I resolved to make the attempt, though it did not seem possible, and so, until the following May, I worked fifteen or sixteen hours a day, eight or nine of them over a microscope. It was, I think, my early training at home that enabled me to hold out under such a strain, for I always had my Sunday rest and returned to work on Monday morning "like a giant refreshed."

By the rules of the University, I should have to be examined in a major subject (*Hauptfach*) and two minor subjects (*Nebenfächer*) and also present a dissertation on some piece of original research. The dissertation would be provided for, if I could finish enough of the study of Calberla's great material. For the major subject, I would offer zoölogy and for one of the minors palaeontology, but the second minor presented a problem. As I was working and hoping for a geological appointment at Princeton, it would have seemed natural for me to take up geology in Europe. But in London and in Heidelberg, at that time, geology meant microscopic petrology, which would have been of little service in the work I should have to do at home. Nevertheless, had time permitted, I should have been only too glad to take the course in petrology, especially as Rosenbusch, professor of geology in Heidelberg, was one of the great masters of that subject and students came to him from all parts of the world, our own Professor Smyth among them.

I finally selected botany as my second minor, since I had already done considerable work in this science in Princeton and in London. As Gegenbaur was a professor in the Faculty of Medicine and I a candidate for the Ph. D., he could not examine me or report upon my thesis, but merely give me a certificate of steady and successful work in his laboratory. I therefore registered in the courses in zoölogy and palaeontology by Professor Bütschli, who was extremely kind and helpful to me. When I told him that I meant to offer palaeontology as a Nebenfach, he laughed and said: "I shall have to examine you and it will be rather a farce, for you know more of that subject than I do." The work in botany, I proposed to concentrate in the second semester, attending the lectures and laboratory instruction of Professor Pfitzer.

A source of time-consuming annoyance lay in the dishonesty of most Heidelberg tradesmen, to whom the foreigner was fair game. I do not know whether this unscrupulous exploitation of strangers was general throughout Germany, or local and due to the irresistible temptation offered by the unusually large bodies of English and American residents. Judging from the nefarious practices of hotels and restaurants, I should infer that the custom was widespread. I refer to the unconscionable overcharging of every one who did not speak the language. From our landlord's Dienstmädchen, my Mother learned the normal prices of the groceries and provisions needed in our modest ménage. If she attempted to buy anything outside of this range, she was sure to be outrageously cheated. For that reason, I had to do her shopping, as, without haggling and merely asking the price, I could get an article for one-third, or even one-fifth of the sum demanded of her. Of course, there were honourable exceptions.

A letter of December 14, 1879, sums up our manner of living very tersely. "Heidelberg is decidedly a dull place for friendless people, such as we are. My circle of acquaintances remains just what it was three months ago. I met one English girl some weeks ago, with whom I was quite smitten, for she is really very beautiful, but she cut me dead three times in the street and I concluded she was not all that my fancy had painted her. I wish I could think of something spiteful to say of her, but I can't. All this routine and isolation must be terribly hard on Mother, but not in the least so on me, for the obvious reason that I haven't the time to think about it. I hope we shall find more pleasant acquaintances in Naples, should we conclude to spend next winter there."

Christmas we spent, of course, in the quietest fashion. The English Church was prettily decorated with evergreens and flowers and the streets were gay with throngs of people making their last minute purchases. Our landlord invited us upstairs to see the Christmas tree, which was decorated and lighted very much as at home, where we had taken over the German custom. In my childhood, we never had Christmas trees and New York, with its persistent Dutch traditions, made New Year's day much more of a holiday than Christmas, but the German tree, once adopted, spread very fast and soon became universal. Throughout the vacation, the laboratory was open and I went every day, as usual, though I had the place pretty much to myself. Even on Christmas Day, I managed to put in a couple of hours there.

The first three months of 1880 were given to hard, though most enjoyable toil. Had the work been uninteresting, I don't think I could

have endured the strain so long. The entries in my diary are concerned chiefly with the progress of my investigations, and the record of half a century ago still breathes the exhilaration of discovery and pioneer work. Strange to say, the significance of this work did not appear until Kiaer's discovery in 1923 of the wonderfully preserved fossil fishes, to call them so, of the Silurian of Norway. Throughout this time, Gegenbaur was extremely encouraging, expressing his gratification over my results. He wished me to publish a series of papers and then bring out a monograph in book form and was much disappointed, when I had finally to abandon the scheme.

When, at last, the dissertation was finished and ready to present to Professor Bütschli, of the Philosophical Faculty, Gegenbaur suggested that I should let him look it over, before I handed it in, and he would correct the German. This was really an extraordinarily kind thing for him to do, for, being a member of the Faculty of Medicine, he was not officially concerned at all. Of course, I gratefully accepted the offer and was much cast down when, after a fortnight or so, he returned the important document with the remark: "Your style is not clear and some of your sentences are bad; I have marked the worst of them and those you must change." I thanked him warmly for his kindness and began the revision in all humility. However, my spirits gradually rose as I discovered that the corrections, one after another, referred to sentences quoted from German writers and not one of them marked a sentence of my composition. In great glee, I hurried to Gegenbaur's private room and said to him: "Herr Geheimrath! I am infinitely obliged to you for the trouble you have taken with my thesis, but, unfortunately, all the passages you have marked are taken from German works and one is not permitted to correct quotations." He laughed heartily and replied: "Ah! I didn't notice the quotation marks. But don't flatter yourself on that account, German scientific style is verdammt schlecht." To which I, inaudibly, rejoined: "And yours is one of the worst."

CHAPTER TWELVE

HEIDELBERG—THE UNTERNECKARSTRASSE

FOR several distinct reasons, the third of April marked a new era in our Heidelberg life. On that date, we gave up our flat in the Plöckstrasse and moved to a *pension* down by the river, which was kept by two sisters, the Fräuleins Lang, to whom we soon became very warmly attached. This attachment grew and increased so long as those dear ladies lived. My Mother, my Wife and Mother-in-Law were all included in this bond of affection and cordially returned it. I made three long visits to that house, in 1880, 1881 and 1888, and my second daughter was born there. It was often said in my hearing that, of the long series of English and American students who had lived in the house, Dr. Jacob Gould Schurmann (afterwards President of Cornell University and American Ambassador to Germany) was the favourite of Fräulein Elise and I of Fräulein Gretchen. However that may be, I had every reason to feel assured of the cordial friendship of both these admirable women.

A third sister was married to a Freiherr, or Baron, and it was our privilege to make the acquaintance of those dear people, who were noble in every sense of the word. We gained an entirely new conception of German life and character from these families and others whom we learned to know through them, including some of the much decried Junkers of Prussia. With all their faults, I found a great deal to admire in this class and they were the most agreeable, cultivated and best-mannered folk that I met in Germany. With the Freiherr I made an acquaintance, at first quite formal, which very gradually became a real friendship and his death was the cause of sincere sorrow to me.

To my Mother, our change of dwelling place was the source of unalloyed pleasure; she was no longer lonely, but had interesting and sympathetic companionship always at hand, for Fräulein Gretchen spoke excellent English. Through the first six months, my Mother had endured uncomplainingly much that was unpleasant for my sake, but

the rest of our stay in Heidelberg was a continual joy to her and, until her death, it remained one of her sunniest memories.

On the wall of the living room in our apartment in the Plöckstrasse there hung a tinted lithograph of the *Porta Nigra* in Trier (or Trêves) a wonderful Roman work of the fourth century. I don't believe that I had ever so much as heard of Trier before that, but the picture awakened an ardent desire to go there and this desire was further strengthened by reading Freeman's famous essay on Trier. The visit, so much desired, could not be made until 1888.

The unremitting labours of six months began to tell on me, and matters were not improved by an unpleasant and unsuitable diet and insufficient exercise. I became very nervous and could hardly sit still and, to combat this tendency, I took to smoking and found it an excellent sedative. There must have been some indication in my appearance that the bow had been drawn too tight, for Gegenbaur told me that I was overworking and must have a rest. "Take an excursion somewhere and recruit your strength." Gadow and I had often talked of taking a tramp through the Black Forest and concluded that the short Easter vacation could best be utilized in that way.

Hans Gadow, Ph. D., was one of the three workers in Gegenbaur's laboratory and we became lifelong friends. He was a Pomeranian and, as his name indicated, of Wendish descent. He used to declare that he hated Germany and meant to emigrate, to England if possible, as soon as he could, and was already in correspondence with Dr. Günther, of the British Museum, with a view to obtaining a position there. He went to England and, after a period in London, he established himself in Cambridge, where he was made a fellow of King's College and a reader in zoölogy and there he remained for the rest of his life, marrying Miss Paget and building a house at Shelford. Several times he and his wife were our guests in Princeton and several times I stayed with the Gadows in Shelford and thus our friendship was maintained as long as he lived and his unexpected death came as a great shock.

Gadow never quite forgave me for catching him in a trap that I set for many Germans and always successfully, though the victim was usually quite unconscious of having been caught. When I made a new acquaintance and could not tell his place of residence from his accent, I would ask him casually where the best German was spoken. Invariably the reply was: (1) in Hanover and (2) the place where I live. Hanoverians had no second choice. Thirty years after we had left

Heidelberg, Gadow referred to the matter laughingly, but with evident signs of vexation.

Our Black Forest tramp was a great success and we heartily enjoyed it. We began the walk from Freiburg, through the Höllenthal, up the Feldberg, which we found deep in snow, and so on to Constance. Thence we returned to Heidelberg by rail. The tour was instructive, as showing us the ways in which the foreigner was systematically fleeced. Years before a cousin of mine had encountered an uncommonly candid landlord in Switzerland who told him that the hotels had three tariffs. One, much the lowest, was for students, the second for travellers from the Continental nations, and the third, very much the highest, was for those who spoke English. At that time Englishmen and Americans were not clearly distinguished.

We gave ourselves out as German students, registered Heidelberg as our dwelling place and, almost always, spoke German to each other. Our living expenses were ridiculously small, except at one little rustic inn, where we had taken refuge from the pouring rain and which looked as though taken directly from one of Auerbach's tales. As the storm kept up and the place was clean, we spent the night and took seats in the taproom, the only warm place in the house, which was full of peasants. We exchanged a few sentences in English and, at the sound of that remunerative language, the landlord jumped up and peered at us around the great tile stove, behind which he had been sitting. I don't think it was merely a coincidence that our bill there was twice what it was at any other place.

Many years after the date of our tour through the Black Forest, I was talking to the head-waiter of a hotel in Munich, when he remarked: "You speak surprisingly good German." "Yes," I replied indifferently, "I find it cheaper." For a moment he looked very sheepish and then laughed and said: "I am afraid I'll have to admit that you are right about that." Not that the Germans were sinners above all other peoples in exploiting the stranger—the other Continental countries were quite as bad, though I never encountered that particular practice in England. The way in which recruits in our great training camps in 1917-1918 were cheated by the neighbouring farmers and storekeepers is sufficient to keep us from cherishing any self-righteous feeling of superiority on that head.

I returned from the Black Forest inexpressibly refreshed and ready to take up in earnest the work of preparing for the examination. For the time being, I had to drop my embryological investigations, though

a great deal remained to do. My dissertation represented only about half of the work to be done, though it was a complete unit in itself. As soon as the second semester began, I took up botany with Professor Pfitzer, continuing in zoölogy and palaeontology with Bütscheli and in comparative anatomy with Gegenbaur. Most of my time and effort, however, were devoted to study in my own rooms. Letters from Dr. McCosh made it a practical certainty that I should receive an appointment in June, as assistant to Dr. Guyot, but urging me to take the degree, none the less.

Dr. McCosh also directed me to get recommendations from such of my instructors as might be willing to give them. I therefore wrote to Huxley and Balfour on the subject. Huxley's reply began by saying that, on principle, he never gave letters of recommendation and then proceeded to give me a very flattering one, but "saved his face" by addressing it to me and telling me to make any use of it that I chose. Balfour's letter was also most gratifying, and from Gegenbaur I asked permission to send the certificate of successful work, which he had given me to present to the Philosophical Faculty.

In her youthful days, Fräulein Gretchen had been a governess in a Prussian noble family and had gained the lasting affection of her pupil. The pupil, the widow of an officer who died from the effects of a wound received in France in 1870, was accustomed to visit Heidelberg every year, on her way to and from Italy. In May 1880, she came to our *pension* with her younger sister and little girl. I was extremely glad of the opportunity to meet this family, for they were Junkers of the straitest sect and had all the failings and prejudices of their caste. Frau von S. was a great friend of Treitschke's and not only admired him, but had a warm affection for him. She was reserved and cautious in the expression of her views, but the sister could not restrain her hatred and contempt of England. What these people thought was important; not that they were especially influential, but that their opinions were those of the most powerful class in Germany, which exercised a strong influence upon the army.

Compared with the nobles of Baden, these people seemed brusque and overbearing, but they had, nevertheless, admirable qualities, conspicuous in which were a strong sense of duty and honour, loyalty and patriotism. They were highly cultivated, too, and had a genuine love of art and a reverence for learning that were not characteristic of the upper classes in England. At first, rather repelled, I came to have a

sincere liking and respect for these honest and uncompromising Junkers.

A visit to the hereditary seat of the von Goeler family, the "Schloss" at Mauer, which had been in their possession since the fourteenth century, proved to be of great interest. It was on this property that the famous Heidelberg man (*Homo heidelbergensis*) was long subsequently found and made Mauer one of the most celebrated of archaeological localities, like Neanderthal, Cro Magnon, and Piltdown. But that discovery was then in the future and our interest was of much more recent date, for the "castle" retained so much of its primitive character. The farmyard, with stables and cow barns, was at the very front door, for purposes of defence against feudal enemies and, with the exception of two or three rooms, the furniture and equipment were as bare and plain as in our Leipsic *pension*. Yet, these were delightful people, much more human and attractive than their brother nobles of Prussia. To some members of the family I expressed my surprise that they, enlightened as they were, should be such unbending Conservatives, and the answer was instructive: "How *can* we be anything else? We are Christians and to be liberal in politics means to be anti-Christian, or even atheistic."

In this pre-examination period, I had less of diversion than ever, but I did snatch an hour to hear one of Kuno Fischer's lectures on *Faust,* a course which drew a larger audience of students than any other in Heidelberg. Kuno Fischer was a great man in those days; what his lasting reputation as a philosopher may be, I am unable to judge. He was a curious looking man, with a face like a bulldog's and he played upon this resemblance and upon his own name (kuon, kunos) by keeping a pug, which he called Homo. I often met him and Homo on their daily walks and the likeness between them was ludicrous. Fischer was said to be very egotistical and his appearance tended to confirm this, for he was always carefully, even fashionably dressed and he walked with a slight swagger. Gadow used to say that his walk seemed to proclaim him as saying to himself: "Ich bin der grosse Kuno; ich bin der grosse Kuno," after the manner of the characters in Offenbach's *La Belle Helène.*

I took advantage of the Whitsuntide holidays to make a trip to Bonn, where I wanted to make arrangements with Krantz and Sturz as to purchases of fossils. At Mainz I took the steamboat and spent the day on the Rhine, finding it far more beautiful and interesting than I had on my tour of the river five years before. Dr. Troschel, the distinguished

professor of zoölogy at the University of Bonn, was Gadow's uncle and, at the latter's request, I called upon the professor. He was a dear old man and received me very kindly and courteously and yet with a certain sadness, for which I could not account. As I was bidding him farewell, he said wistfully: "I hope you have learned to like Germany: es ist doch ein gutes Land."

On June 2, according to my diary, Fräulein Elise, the Baroness and her three children went by train to Speyer and, on their return, told a most exasperating tale of arrogance and rudeness on the part of the railroad officials. I have entirely forgotten the circumstances, but, until my last visit to Germany in 1926, I remained of the opinion expressed in the entry: "A German in office is certainly the most disagreeable of created things." Since the War, there has been great improvement in the manners of the officials.

I had hoped that my dissertation was off my hands "for good and all," but I was flattering myself. Professor Bütschli sent for me and we spent two hours in going over the manuscript together. As my diary reports it, "he has, with great kindness, taken the trouble to correct even the faults of style. He expressed himself as very much pleased with the work, much to my relief, as I had feared otherwise." After making the suggested corrections, I returned the all-important document to Bütschli, in the hope that I had seen the last of it, but, a year later, a fresh crop of troubles sprang up to plague me. These, however, were due to Gegenbaur's long and desperate illness.

Meanwhile, the examination was drawing on apace and June 15 was set as the great day. I was very much frightened and felt sure that my preparation was altogether inadequate, but I was so weary of the whole matter, that I wanted it over and done with, whatever the result. It was necessary to hire a top hat, for I didn't possess such a thing and, in evening dress to call solemnly upon the Dean of the Philosophical Faculty and then upon Professors Bütschli and Pfitzer and invite them to examine me upon the following day. At the examination, the candidate had to present himself in evening dress, as we consider it, with white tie and top hat, in order to mark the high solemnity of the occasion.

For an hour, Bütschli questioned me in zoölogy and then I was invited to partake of light refreshments, cake and wine, in which the Dean, the examiners and several professors, who were present as spectators, joined me. After this pleasant interlude, Bütschli took me in hand again and questioned me for forty minutes in palaeontology and

this was followed by Pfitzer with the same length of time in botany. Then I was requested to withdraw, was readmitted after a few minutes and informed that I had passed, but was not to learn till the following day which of the four grades would be given me. I hurried home and delighted my Mother with the great news. All the household rejoiced with her and we celebrated by attending the evening concert at the Castle.

The next day, I returned to the University "zum Promoviren," that is, to receive the degrees of Master of Arts and Doctor of Philosophy. Luckily, I went a trifle early, for I had committed the enormous blunder of appearing in a morning suit, and the horrified Bedell hustled me back home to change into "Frack und Cylinder," *anglicé* swallowtail coat and top hat. This I did in record time and kept the Dean waiting but a few moments. Then an official read a long oath in Latin, to which I swore and subscribed, but, as it was read very rapidly and with the German pronunciation, I could not understand a syllable of it and have no idea of what I swore to do and observe. I can only hope that I have not perjured myself many times since. Then, very timidly, I asked the Dean if I might know which grade I had received and, quite indifferently and just as if it had not been the most important event in modern history, he said: "Yes, the first." *Summa cum laude*! Fancy that! I had never dreamed of attaining that distinction and my emotions were composed equally of surprise and delight. When I got home and told my Mother, she was fairly beside herself and flew down the long corridor and into the living room, crying out: "He's got a first; he's got a first." All the family, including the servants, rejoiced with us in the friendliest way and Gegenbaur's deep gratification repaid me for all my toil.

A couple of days later, the Bedell brought me fourteen copies of the diploma, one on parchment, the others on paper and these I enjoyed sending to interested friends; they brought me in a harvest of congratulatory letters, including two charming ones from Huxley and Balfour. Evidently, too, I was beginning to gain a reputation at home, several straws indicating the direction of the wind. A young woman in Boston (I assume she was young, her letter sounded so) wrote to ask my advice as to the best place in Europe for her to study biology. The president of a woman's college in New England wrote to inquire whether I would consider an appointment to their Faculty. This, by the way, was the only "call" I ever received from any college but Princeton. I have often wondered why, almost alone among my colleagues,

I never received any offer of an appointment elsewhere. One youngster on the Princeton Faculty has had seven calls and men like Russell and Conklin have probably stopped counting theirs. Not that I ever wished to leave Princeton; my roots here are far too deep for that, but it is not flattering to my self-esteem that no one else has ever desired my services.

Not long ago, I saw, for the first time, a letter from one of my aunts, describing the melancholy Commencement of 1880. Dr. McCosh did a very unusual thing in publicly announcing that "the Trustees had made an appointment, the day before, which he thought would add to the efficiency of the College. Mr. William B. Scott had been appointed instructor in geology (to assist Dr. Guyot). Mr. Scott has made some original researches in biology, which have attracted the attention of scientific men abroad." Shortly before his lamentable death, my dear friend, Dean H. B. Fine, was speaking to me of that same melancholy Commencement, at which he graduated. He told me that he had delivered the Latin Salutatory to an audience of only about a hundred people; that the whole College had been dismissed weeks before and that very few of the graduating class had come back to receive their diplomas.

The cause of all this was the devastating epidemic of typhoid fever which raged among the students in the spring of 1880. I have not the figures at hand, but I know that there was a large number of cases and several deaths occurred, with some particularly sad cases of suicide in delirium. In those days, nobody in America understood the nature of typhoid, or the manner of infection. The epidemic was erroneously attributed to certain waterclosets which had been put in the dormitories and these were hastily ripped out. As an additional precaution, a company was formed to secure a supply of pure water although no one then knew that the source of the trouble lay in the tainted wells from which the drinking water was drawn.

This epidemic was the second of the disasters in Dr. McCosh's administration, which so retarded Princeton's growth; for years the student body hardly increased at all and gifts of money almost ceased. The ill-wishers of Princeton, in general, and of Dr. McCosh in particular, seized the opportunity to make a savage attack on the College for criminal negligence, sacrificing the lives of its students by apathetic and slack management. This attack did untold damage and was entirely unjust. Before and after that time, epidemics occurred in other college towns and the leniency with which they were treated in the newspapers

was in the strongest contrast to the onslaught upon Princeton. The difference was enlightening.

The taking of my degree was a means, not an end, and therefore I went on with my work very much as before, but with far less strain, for I could now afford some relaxation and amusement and did not feel compelled to devote every waking minute to work. Linguistically, too, I felt safe against corruption in speaking English and reading novels and newspapers. I had learned to speak German so fluently, that, while educated people could usually detect my native tongue, the unlearned assumed that my accent meant that I came from some other part of the country. The laboratory servants thought that I was from Pomerania, because Gadow was.

I had gone to Germany with a fair knowledge of the elements of the language, had had excellent teaching in Dresden and constant practice in Heidelberg, yet, for a long time, I seemed to make no progress. Talking was a slow, laborious operation and, then, almost suddenly, I had a sense of emancipation, when it became easy to converse fluently. No longer translating mentally, I was thinking in German and was greatly amused to find that, in anticipating interviews with Dr. McCosh, I was making him talk German, a language in which, probably, he could not form the simplest sentence, though, of course, he could read it. I was even dreaming in German and then, at long last, I felt that I had the language by the tail. Needless to say, I continued to make mistakes in plenty, but, as a means of expression, I could use German almost as readily as English. One evening, I was with Gadow and a party of English girls on a hilltop across the river, waiting for the illumination of the Castle to begin. Annoyed at the delay, I made use of some impatient slang phrases when I heard Gadow chuckle and say to his neighbour: "Der Scott, der kann deutsch." This facility in using German was, perhaps, the most valuable result of my life in Heidelberg, though the benefits were many. In noting in my diary my farewell to Gegenbaur, I wrote: "I never did a better thing for myself than coming here."

In that summer, I made some very pleasant acquaintances among the English young people and, for several weeks, I made picnics and excursions in the afternoons and evenings, in larger and smaller parties. In this way, I learned to know the country around Heidelberg and up the Neckar valley much more thoroughly than before. All this association with pleasant companions and pretty girls was especially delightful to me, not only because it came at the end of two years of

exceptionally hard work, but also because of its complete difference from anything I had known before. As previously explained, I had had almost no young life, but had grown up among elderly people. It was the charm of novelty, as much as the relaxation after hard work, and unusually pleasant companionship that made the early summer of 1880 a "purple patch" in my memory.

All this junketing was the seasoning in a dish of hard work, but it was work that I thoroughly enjoyed, for it was free from the sense of "strain and stress," from which Whittier prayed to be delivered. For the remainder of the semester I continued to attend my lectures and keep my laboratory hours in botany, just as though I were still a humble "Kandidat" and not a lordly "Dr. Phil." My principal occupation, however, was the renewal of embryological work and I spent most of the daylight hours in Gegenbaur's laboratory. He had accepted my thesis for publication in the *Morphologisches Jahrbuch,* of which he was the editor, but this covered only about half of Calberla's material and I was most anxious to finish it in a second paper. I soon began to get important results, which greatly interested Gegenbaur and he said: "You must immediately prepare two preliminary papers for publication in the *Zoölogischer Anzeiger,* giving a brief résumé of the results already attained." This I did and the papers were very promptly published. Work as I might, however, I could not finish the material before it was necessary to start homeward and this made it necessary for me to return to Heidelberg the following year.

While busy in the manner described, I received an immense compliment from Balfour. He was then preparing the second volume of his great *Comparative Embryology* and wrote to ask whether I would revise the chapter containing the Lamprey and read the proofs of it. I was eager to do this, but felt that I could not promise without Gegenbaur's consent. After some hesitation, he gave me permission to accept Balfour's most flattering offer. The hesitation was entirely on my account, lest I should lose some of the credit that was my due by allowing another to make use of my unpublished work. In due time, Balfour's galley proofs arrived and I did my best to put them into accurate shape. He, himself, had gone to Switzerland for his annual outing in the Alps, where, two years later, he met his death. From Zermatt he wrote me a letter which was found in the pocket of an old diary after many years of hiding. When I reread that letter nearly fifty years after the date of its writing, it gave me keen gratification, for it was "approbation from Sir Hubert Stanley," which was "praise indeed."

After a brief visit to Nuremburg with my Mother and Fräulein Elise, we started for London, there to take ship for New York. To both of us, the bidding farewell to Heidelberg was a severe wrench, especially to my Mother, who felt, only too prophetically, that she could never return. Though rejoicing in the prospect of getting home again after two years' absence and though feeling assured that I should soon be back in Germany, I hated to leave, for such experiences as I had had could never be renewed or repeated. We left Heidelberg on September 8 and sailed from London a week later on the S. S. *Canada* of the National Line, a most uncomfortable ship, and we had a long, slow, rough voyage, for she was very light and rolled like an empty cask. The passengers were of the usual mixed sort, a few delightful people and a lot of the kind that makes one wonder where they keep themselves when ashore; one never meets them except at sea. The redeeming feature of that dreary voyage was Captain Healey, the master of the ship, though we seldom saw him, except at table. He was a hearty, genial soul and a magnificent body, fitly topped by a fine bearded head, worthy of Olympian Zeus.

Before taking up the tale of my professional career, it will be convenient to give a summary of the impressions made on me by my first year in Germany. That residence was not very long, only about a year and a quarter, but it counted for more than so short a period ordinarily would, for I associated almost exclusively with Germans, steeped myself in the language, devoting my scanty leisure to reading German newspapers, periodicals and books and attending the theatre, whenever I got a chance. My experiences brought me into contact with all sorts of people, from the nobility to the poorest labourers. Letters and diaries enable me to avoid mixing later experiences and dislikes with those of 1879-1880.

It was the fame of the universities that took me to Germany. In those days, not to have studied in Germany was to confess oneself unprepared for the higher kinds of work in one's own field. Few in this country then understood the advantages which England had to offer, while, in the natural sciences, there was little to be got in France. Germany, on the other hand, was at the zenith of her intellectual glory and the lamentable decline, which set in later, had not yet begun to manifest itself, a decline which the Germans themselves admitted.

Dean Fine, who had been a pupil of Klein's in Göttingen, told me of an enlightening experience. One evening in the Seminar, no one felt inclined to work and general conversation took the place of mathe-

matics. The company proceeded to fall upon America as being entirely materialistic and given over to dollar chasing. Fine stood it as long as he could and turned on the Germans with a counterattack. He said that Germany's great industrial development would inevitably lead to an intellectual decline and bring about a period of money worship, when the best brains of the country would forsake the academic career in favour of the practical life. This forecast was received with derision as being ludicrously impossible. Years afterward, Klein wrote to Fine, asking if he remembered the conversation in the mathematical Seminar of such a date and ending: "Everything that you prophesied then has come to pass; you were absolutely right in every particular."

My life in England and association with the scientific leaders there had prepared me to form a cool and objective estimate of the Germans and their claims to leadership in all departments of science. Had I gone directly from home to Germany, my conclusions would probably have been different. From the quantitative standpoint, Germany stood at the head; no other country had so large a number of competent investigators in all departments of science, or so many brilliant names in the roll of honour. Nevertheless, the Darwins, the Pasteurs, were English or French, not German. Of course, Einstein is an extraordinary exception, but his work was still to come, at the time of which I am writing. Even in lines in which the Germans have made themselves preeminent, such as microscopic petrology, the pathfinder was Sorby, an Englishman.

German science, too, was exclusively academic; the independent investigator, who held no position and was responsible to nobody, such men as Darwin, in short, were entirely absent and, therefore, there was a rigidity and discipline in German science which were peculiar to the country, I did not have to wait till 1914 to learn that German science was theory-ridden, and that, when an investigator adopted a theory, he thereby blinded himself to every fact that did not tell in its favour. Gegenbaur was a very independent and truth-loving investigator, who never let a theory run away with him; for most of his German colleagues he cherished an unconcealed contempt, as he made very plain to me in our frequent, almost daily, discussions in the laboratory. Some of them he despised so heartily, that he could not mention their names without some expression of annoyance.

At the time of my first long visit, Germany was still in the heroic period, which was nearly coextensive with the reign of the old Emperor, William I. The great historic figures, Bismarck, Moltke, Roon, were

still alive and the whole nation was in a state of patriotic exaltation, which followed on the astonishing success of the campaigns against Austria and France and the unification of the empire. When the time came to fill the places of the great men, political, military and academic, of that generation, the lamentable change for the worse came to light.

The superiority of the German university was largely a matter of organisation and equipment. Sir George Darwin once told me that he considered the colleges of Oxford and Cambridge to be a great drawback to efficiency of instruction, because they prevented the organisation of the teaching staff into faculties. The undoubted advantages, to the American student, of Germany over England, at that period, were due more to organisation than to the individual professors. Gegenbaur was a great man, but I never thought him equal in force or brilliancy to Balfour or Huxley. This, of course, applies only to the sciences with which I was concerned. In philology, I was assured, the superiority was all the other way, and I do know that the Germans looked upon English scholarship as amateurish.

When the university is considered as a place for the training of men and citizens, the German system did not shine. The authorities were entirely indifferent to vice, dissipation, or idleness on the part of the students. So long as he paid his fees, a man might remain a student all his life and no one would trouble him. The government cold-bloodedly favoured dissipation, as tending to act as a means of natural selection, eliminating the weak and reducing the numbers of the "learned proletariat," the crowd of highly trained men for whom there were no places. The Prussian Minister of Education told Sloane that the more students that went to the dogs, the better, as clearing the way for better men. I had no time to bother with Corps, or Burschenschaften; I never saw a duel, or went to the Hirschgasse: what I know of that side of German student life is from hearsay. I think, however, that inordinate beer-drinking and face-slashing are a poor substitute for athletic sports. Since the War, the Germans seem to have reached that conclusion themselves.

For the German theatre I had unqualified admiration and I have always wished that it might be possible to introduce the German system into this country. Comparison of the stage in the English-speaking lands, on the one hand, and of continental Europe, on the other, is not feasible, for, with us, the theatre is a private, commercial undertaking, while, on the Continent, it is a public institution, supported by the

state, or the municipality. While I have never seen a performance at the Comédie Française in Paris, or at the Schauspielhaus in Berlin, from all that I have heard I should infer that the best French acting surpasses the best German, but, away from Berlin and Paris, there can be no comparison. The capital of each little duodecimo German state had its court theatre, where all possible trouble was taken to have a creditable stage. In the larger cities, where I made a longer or shorter stay, Leipsic, Dresden, Munich, Frankfort, Mannheim, theatre and opera were admirable, especially in the high level of all the company. Our system of stars was unknown, every rôle was competently filled and there were no long runs, the bill changing almost every night. Prices were very low, not a quarter of those demanded in London or New York. In my day, the stage was eminently decent, but by 1911 it was evident that the pornographic wave that was sweeping over the world had washed up on the German stage. Of German music, it is not necessary to speak; its supremacy was taken for granted.

Germany was a very well administered country; many people thought it the best in the world. Public works of all kinds were excellently managed and the post office, in spite of the ill-mannered officials, was the best with which I ever had any dealings. The cities were well lighted, paved and cleaned and, when I first got home, American cities seemed incredibly slovenly, by contrast. Though they knew their work and did it conscientiously and well, German officials were, for the most part, exceedingly unpleasant people to deal with, for they were typically bureaucratic and considered that the public had no rights. Policemen made themselves very obnoxious in a quite unnecessary way; the friendly attitude of the New York and, more especially, of the London police was something that I never saw approximated in Germany.

The outstanding, conspicuous feature of life in Germany was the army. A hackneyed old proverb says that fire and water are good servants, but bad masters; that is pre-eminently true of the army and, under the Empire, the army was emphatically Germany's master. Yet, the German military system had much that was admirable about it and I came home a firm believer in universal military service. For the great majority of the recruits, the army was an excellent school; they were taught healthful habits and (relative) cleanliness; their self-respect and efficiency were so improved, that they had much better chances of civilian employment, when the term of service was over. The abuse and ill-treatment of the privates, of which one heard and read a good deal, was due to the improper authority given to the noncommissioned

officers, many of whom were brutal tyrants; but that was no necessary part of the system.

What a wonderful military machine the German army was, was obvious to every one who lived in the country, and was completely demonstrated in the World War. The great objection to it was its dominating power. As Heidelberg received no garrison until after we had left, I had little personal experience of military arrogance, but I heard a great deal. True, during my student days, Bismarck held the monster in check, but his control was political only. Socially, the officer caste was the highest, most influential, most admired of any class in the nation. The public state of mind was a curious mixture of civilisation and barbarism; the warrior caste was as exalted as in any savage tribe, while, on the other hand, the scholar, the man of science, or the artist, was held in much higher esteem than in the commercialized life of England and America.

The arrogance and contempt of the officer toward the civilian were such as would not have been tolerated in a completely civilized land, such as France. When some fledgling wounded or killed a civilian in defence of his "honour," he escaped with very light punishment. Several such cases occurred, while I was in Germany. The military outrages in Saverne (Zabern) shortly before the War, which are familiar to every one, shocked the whole world and even stirred the slow wrath of a great many Germans. Never was the impotence of the civil government before the army so strikingly displayed and never was the real character of the Reichstag as a mere debating club made so manifest. It is a very significant fact that the emperors, as well as the heads of the federated states, kings, grand dukes, etc., were, first of all, officers and passed most of their lives in uniform. Bismarck is quoted as saying that he took more pride in being a Prussian major than in being chancellor of the empire and that his army commission was essential to his authority as minister.

As compared with England, there was but little social life in the Germany that I knew and this I attributed to the poverty of the country. I think, too, that this poverty and the consequent intensity of the struggle for place and career were responsible for the hard egoism and envious disposition which characterised so many Germans. An American lady, who had lived several years in Frankfort, said to me: "I don't like the Germans; they will so seldom put themselves out to do a kindness." I returned home very conscious that we had a great deal to learn, but entirely satisfied that the better sort of Americans were finer

people than the corresponding class of Germans. In England, I was often distressed by displays of snobbishness and philistinism. Lord Palmerston's sneer that Prussia was "a land of damned professors" still expressed the sentiments of large sections of English society, sentiments that were dearly paid for in the war, which taught so many hard lessons.

In Germany I encountered no snobbishness at all and but little philistinism, for learning, science and art were held in sincere respect by all classes of people. I fancy that that was what Marion Crawford meant, when he declared that Germany was a more civilised country than England. After I had taken my degree, Fräulein Gretchen laughingly, but seriously, told my Mother that my value in the matrimonial market had risen greatly and that I was now eligible to marry into any wealthy family, a point of view which the average businessman of England or America would hardly comprehend.

Down to 1912, I went back to England and Germany every few years and noted the remarkable changes that went on in the latter: the great industrial development, the immense increase in wealth and in national feeling and the steadily rising hostility to England. No secret was made of the intention to attack England, when the time should be ripe and this was, no doubt, well known to successive British governments. It was partly blundering statesmanship, partly overconfidence that made Germany take on all her enemies together, instead of following Bismarck's method of overcoming them in detail.

CHAPTER THIRTEEN

RETURN TO PRINCETON

I WAS welcomed by my dear kinsfolk like a repentant Prodigal Son and, within a few days, became engaged to Miss Alice Post, of New York, thus bringing to a happy conclusion the first chapter of the romance that began ten years before. I had a great programme of scientific research and the prospect of long years of delightful work filled me with a kind of exaltation that only slowly died away, as I gradually realised how short those years were to be and how small a part of my programme was to be accomplished.

In addition to my own investigations, I felt a strong urge to take part in the expansion and elevation of college work, in order that we might thus develop a truly national type of American university. My ambition to assist in this movement was first kindled by a remark that Dr. Gregory made to me in his rooms in Leipsic, when he was discoursing upon the manifold defects of American colleges in general and Princeton in particular. I asked him what could be done to bring about an improvement and he replied: "It is for men like you to take hold and effect a reform." I then registered a vow, inwardly, to work for this aim, to the best of my ability. I have been able to do very little in helping to advance the cause of higher education in this country and, at the end of fifty years as a member of the Princeton Faculty, I am far from being assured that I have not done more harm than good. I comfort myself with the reflection that I could not have done much better by swimming against the stream, instead of letting myself be carried along by it.

On the other hand, Dr. McCosh did accomplish a great work in the way of developing Princeton into a real university, in spite of great obstacles and in the face of determined opposition. When he came to Princeton in 1868, he found both Faculty and Board of Trustees so full of hidebound conservatives, that he could accomplish his reforms only by playing off Board and Faculty against each other, and coercing one

body by threats of what the other would do. He had to keep this up through most of his administration and, shortly after my homecoming, a Trustee asked Sloane: "Does Dr. McCosh crack the Board over the Faculty's heads the way he cracks the Faculty over our heads?" He found it necessary to work more and more through the Board and, for a considerable period, the Trustees were a good deal of a nuisance to the Faculty. This undue preponderance corrected itself in course of time.

Dr. McCosh saw plainly that, to carry out his plans, he needed a much larger and stronger Faculty. He had secured Professor Young, one of the most distinguished astronomers then living, but the funds at his disposal did not permit him to call many men of established reputation and, therefore, he secured as many promising youngsters as he could. Fine, Magie, and Marquand were brought back; William Libbey, who had been studying physical geography in Berlin, returned to assist Dr. Guyot in that branch of his work, and now "Jimmie" was reaching out after Osborn. After his return from England, Osborn had gone to the Johns Hopkins marine laboratory at Beaufort, N.C., and Dr. McCosh asked me to go and see him, as soon as he should have returned from Beaufort, and learn under what conditions he would be willing to accept a Princeton appointment. This I did and the upshot of it all was that, to my supreme delight, my dear friend accepted the call and remained with us for ten years. "Eager and gifted youth," Dr. McCosh called this group, all of them his own pupils, and he gave them the most loyal friendship and support.

The autumn of 1880 was one of the radiant periods of my life, when I seemed to have gained everything that heart could wish and with an outlook as promising as any one in my position could expect. To say nothing of my engagement, what immense good fortune I had had! I was settled, so far as one could judge, for life, in the spot which, above all others, was dear to me. I was among my own family and the friends with whom I had grown up. I was in the college that I loved, one of my dearest friends was associated with me, and I had the work which I particularly wished to do. The world was my oyster and I had not yet learned the limitations which put so disappointing a boundary to one's achievements; in that ever memorable fall, I was fairly intoxicated with the joy of living.

Adding greatly to my enjoyment, was the society of young bachelors who took their meals together at the University Hotel; it was like going back to Cambridge. McMaster, soon to become so famous as an

historian, Osborn, Ord (a very clever and witty Yale man), and others made up a table at which the talk was delightfully sparkling and I was often a guest there. With my Mother I had settled at Morven, where we lived for eight years with my Uncle and Aunt, Colonel and Mrs. Sam. Stockton. We occupied nearly the whole of the east wing and the library was given to me for a study. For the remainder of the year I had no formal college duties, but had plenty of occupation in writing the lectures which were to be delivered in the second term. I also spent a good deal of time in the Geological Museum, which then occupied the east and south wings of Nassau Hall. I studied the collections of fossil mammals which we made in the expeditions of 1877 and 1878. Sam Smith had also been collecting for us in the Bridger country and sent in many beautiful things. Dr. Hill had, with great skill and patience, prepared the collections for study and exhibition.

At that time began my association with William, the faithful and devoted janitor of the Geological Museum, and great was the amusement which he unconsciously afforded to Dr. Hill and myself. The building was very inadequately heated by a hot-water system which, though extravagantly costly in the matter of fuel (it burned a ton of coal a day in cold weather), was very inefficient in the matter of heat. One bitter day, when the thermometer in the lecture-room stood at 40°, I sent for William and asked him if he couldn't give me more heat. "No, sir, I cannot," was the emphatic reply, "thim pipes is too unsignified." It was William's language that was such a joy to our hearts, for he was the gravest of men and I cannot remember to have seen him laugh, or even smile. Like "Merton of the Movies," he didn't think anything was funny.

The last piece of work which we did in the expedition of 1878 was to get out of the rock the shell of a huge tortoise, which somebody had found near Fort Bridger and showed to us. On one side the carapace had been attacked by the weather and several pieces were lying on the ground. Of these, we had gathered and brought back as many as we could find, but we must have overlooked some fragments. Dr. Hill was working over this fine specimen, fitting the pieces together and William was watching with intense interest. Finally, he said: "Mr. Hill, I know what ails that turtle: some unforeseen thing et um."

In front of the old gymnasium, which stood on the site of Campbell Hall, there was a copy of the famous antique called the "Fighting Gladiator," which caused great perturbation in William's mind. He came into my room one morning, exclaiming: "Oh! Doctor! I've just

seen the most shockin' thing." "What was it, William?" "Why, down there, in front of the gymnasium, I see a young woman a pattin' the gladiolus on the thigh."

À propos of that statue, I may here record another of its vicissitudes. When Anthony Comstock, the great crusader against all forms of obscenity, came to Princeton to lecture, he found the gladiator modestly clothed in red flannel drawers. No one laughed more heartily at the absurd figure than Mr. Comstock, who needed no explanation of the joke.

Though busy with my work, I took time for recreation and exercise. My chief pleasure was horseback riding, which I did almost every afternoon, when the weather permitted, sometimes alone, more often in a party. My Uncle and his eldest daughter, Osborn, Ord, and other friends were my usual companions. Fanny, a wicked sorrel mare, offspring of the Kentucky mare that I had brought home from Pittsburgh in 1872, and Peacock, a little thoroughbred, hardly up to my weight, were my usual mounts, until Fanny was sold. She was named for the little bobtailed bay mare that Uncle Sam had ridden all through the Civil War.

Returning to New York from a visit to Niagara Falls I spent the week-end with the Osborn family and met a number of college friends. I had the novel and most pleasant experience of being treated by them with real deference, as though I had become a personage in Europe. One '79 man, whom I met in Fifth Avenue, told me that "Jimmie" McCosh had said that my achievements in Heidelberg had never before been equalled by any one. This, I need hardly say, was not true and I don't believe that Dr. McCosh had ever made such an exaggerated statement, but evidently he had said something very complimentary. Dr. Glover, writing a review in the London *Lancet* of one of my published papers, said that I occupied in America much the same position that Huxley did in England. When I remonstrated with him for printing such preposterous stuff about me, he replied that that was what his New York correspondents were telling him.

I set all this down, not with any intention of sounding my own trumpet, but to make clear some of the joyousness that filled my heart in that wonderful autumn, when everything conspired to make me happy and to fill me with confidence in the future. The willing and generous recognition from my fellows, who but two years before had looked on me with indifference, was a large element in a happiness which was

free from arrogance and conceit. At least, so it seems to me in retrospect, possibly my contemporaries received a different impression.

It was with mingled joy and sorrow that, for the first time in three years, I rejoined the family gatherings at Thanksgiving, Christmas and New Year's Day—joy that I was again among my own, so near and dear to me, sorrow that the circle had been broken by the death of my Grandparents. The children, of whom there were eight in the two families, were all so happy and jolly, that the grown people kept their sorrow concealed. The Christmas dinner, at Morven, was attended by twenty-four guests, including the children.

At that time and for five years afterward, the Yale-Princeton football game was played in New York on Thanksgiving Day. It was remarked that this game held much the same place in New York life as the Eton-Harrow cricket match did in London. It was the "swagger thing" to attend the game on a four-horse coach and the procession of coaches, going up Fifth Avenue, was said to be a great sight. I never saw it, for I was unwilling to leave home on that day. There was a widespread feeling that intercollegiate games should be played on college grounds and so the game in New York was given up.

The Christmas vacation I spent in visits to the Osborns in New York and the Speirs in South Orange. While I was at the Osborns', there was a formal "dinner party," which I enjoyed very much and which was memorable as being the first function of the kind that I attended in America. It was very like such affairs in London, but I thought the talk was better, especially on the part of the women. The weather was excessively cold and the poor horse-car drivers, standing on open platforms, suffered terribly. That whole winter was phenomenally severe, as cold and several weeks longer than the preceding one in Heidelberg had been. I thought I was getting more than my share, when two such winters caught me in succession.

When I returned to Princeton after the vacation, I attended my first Faculty meeting, at which the schedule for my lectures was arranged. I was utterly disgusted at being given the dirty work of "spotting," or marking absences in chapel. I was assigned to the engineers' gallery and had to attend every morning at eight, except Saturday. On Sundays, the services were at eleven and five. There were two compulsory chapel services a day, save on Saturday, when there was but one. Saturday afternoon was thus the only time in the week when I could get away from Princeton for more than a few hours.

Wednesday, January 19, 1881, remains an unforgettable day, that on which I delivered my first lecture, the first of thousands. I was not in very great trepidation over this, because it was delivered to a small class of Seniors. My record reads: "Had a small, attentive class of what seem to be good men. I got along very nicely and was pleasantly surprised at my own readiness." The Juniors I did not get till February 4, as Dr. Guyot began the course with them and intended to keep them for another week. As he felt unwell, he suddenly summoned me to take over the lectures, though he very kindly made the effort to introduce me to the class. I was very badly frightened, though I managed to conceal it, for, in addition to much stage fright, I felt that I was putting my whole future to the touch. That was the Class of '82 and one of its members was Jack Hibben, who, in 1912, became President John Grier Hibben. In response to a letter of inquiry, he wrote the following reply.

San Sebastian, August 9, 1925.

My dear Wick:

I have just received your letter forwarded to me here, where we have stopped a few days on our way to Madrid. My recollection of those early days, when you came to Princeton from Heidelberg as an instructor in geology, is vague and dim regarding details, but the impression which you made upon the members of my class in our Junior year is still clear and distinct. You gave us a new view of scholarship as an adventure into the unknown and great world of knowledge. You had the spirit of an explorer returning from his absorbing quest and you were able by your enthusiasm to impart that spirit in a large measure to us, your interested hearers and disciples, as you unfolded to us the marvels and mysteries of nature. Your youth appealed to us and your reputation as a scholar already won, and your gift of clear statement presented in a manner to hold our attention and command our interest. The vision of the young instructor blends with that of the friend of many years—it is difficult now to dissociate the one from the other. The promise of the past has been richly realized and I am very proud that in those far-off days it was my privilege to sit at your feet and with your eyes see the treasures which the world holds for us all, if only we can see. Happy they who have a guide and interpreter by the way.

Mrs. Hibben joins me in love to Mrs. Scott and yourself.

Faithfully yours,

John Grier Hibben

From the time that I left Heidelberg, I had cherished a plan to return there the following summer and finish my work on Calberla's great

material. My engagement introduced an unexpected complication and made me unwilling to leave home. But, most happily, my wife that was to be has always put the faithful performance of duty above every other consideration and the only question she asked was: "Do you think you ought to go?" My determination was strengthened by all the friends whom I consulted. In a letter of April 25 I wrote: "The plot is thickening. I mentioned the idea of going to Heidelberg to Dr. Guyot, for the first time, this afternoon. He is enthusiastically in favour of it and again approached me this evening to urge it upon me. Dr. McCosh is also in favour of it and so, you see, it begins to look very much like going." Osborn and his father and Sloane were among those who urged me to go and, for a time, Osborn intended to go with me, but found it inadvisable at the last moment, for family reasons.

Before I sailed, on June 11, I had a very charming week-end at Garrison, where Miss Post and I were invited by Mrs. Osborn. Mr. Osborn was then building the tower on the mountain-top which was afterwards enlarged and made his country home. Since his mother's death, Henry F. himself lived in it. Mr. Osborn had a visitor, whom he was showing about and to whom he introduced me. This was a youngish, very taciturn man, whom I thought very handsome, but I did not think of him again for years. He was a Mr. John Rockefeller, of Cleveland, and, after he had left, Mr. Osborn told me that he was a man of remarkable ability and would be heard from later, a prediction which needs no commentary.

I finally got away in the S. S. *Alsatia,* a small, dirty, excessively uncomfortable and slow old tub, which, however, had two great advantages, she was cheap and she went directly to London. The voyage, which lasted a fortnight, was smooth, as is generally the case in June, and we landed at the Victoria Dock in London.

CHAPTER FOURTEEN

HEIDELBERG ONCE MORE—SECOND YEAR IN PRINCETON

IN London, my first act was to go about and see as many of my friends as I could find. Dr. Glover was most kindly insistent that I should give up my room at the hotel and make his house my home, while I remained in England and this I was very glad to do. Gadow I found installed in the British Museum. In the evening, he and I went to the theatre to see Gilbert and Sullivan's new opera *Patience,* over which I laughed till my sides ached. This has always been one of my favourites, for it ridiculed the "Aesthetic" movement, which had been at its height during my student-days in London. Barring the extravagant and Gilbertian love-making, I had seen the counterpart of nearly all its absurdities in London drawing rooms. Professor Huxley received me very kindly and asked me to spend the following, Sunday, evening at his house.

Sunday, I breakfasted at Professor Flower's house in Lincoln's Inn Fields and there, for the only time, I met the eminent anatomist, Professor Turner, of Edinburgh. He gave me a great wigging for laughing at His, a Leipsic professor, though I had been taught in Germany that His was an obstinate heretic (verstockter Ketzer). "In the evening," I wrote in a letter, "I went over to see the Huxleys and spent a couple of hours with them. I had a very cordial welcome and enjoyed my visit immensely. The 'General' was very suave and pleasant. He had not heard of Harry Osborn's engagement and laughed hugely thereat and, when I told him that I was in the same condition, he laughed still more and said: 'However, it is a disease to which all young men are liable.' Then he asked after you with a great deal of interest and said: 'Tell her I congratulate her.'" In the earlier part of the evening we all sat out on the lawn behind the house and I was amused then and am amazed in the retrospect by the "night air" superstition. As the dusk began to fall, the "eminent man" called out: "Girls! it is not very prudent for you to be sitting out here in the night air. Let us go in";

whereupon we all obediently went into the house. Two years before, Dr. Glover had scolded me for sleeping with open windows.

I left London on Wednesday and, going by the Flushing-Queensboro route, reached Heidelberg at 11.40 p. m. after twenty-seven hours of travel, finding the two dear Fräuleins Lang waiting up to give me a hearty welcome. Almost immediately came the news of the shooting of President Garfield, which caused great excitement in Europe. For many weeks there was alternation of hope and fear and the end did not come until after I had returned home in September. This crime was the occasion for the display of characteristically German modes of thought on the part of the university librarian. I had come into contact with him so often, that we were quite chummy and I could venture to differ with him despite the awful authority of his position. He was convinced that the assassination was the outcome of a widely ramifying political conspiracy, which threatened the very foundations of our government. Nothing that I could say would shake that belief; he knew much more about it than I did. It was a typical instance of wishful thinking; he wanted it to be so and therefore it must be so. Treitschke's oft expressed conviction that the American Republic had but a short time to live, was generally accepted in academic circles.

I found Gegenbaur recovering from a long and desperate illness, in which his life had been despaired of. For several days after my arrival, I was not permitted to see him and when, at last, I was allowed to enter the house, I was agreeably surprised to see so little change in him. He told me that almost all his organs had been affected, adding, with a laugh, "but I'm tough and I am getting well fast."

My letters were filled with complaints of the hot weather; the thermometer was above 90° for many days and once, at least, rose to 99°, but the laboratory was relatively cool and my work went along at a very favourable rate. I was joined there by Max Fürbringer, professor at Amsterdam and a very distinguished anatomist. He became Gegenbaur's successor at Heidelberg. Fürbringer was a clever and amusing chap, full of fun and good stories, so that I greatly enjoyed his companionship. I last saw him in 1903.

Gegenbaur's long illness caused me considerable embarrassment in the summer of '81. My dissertation had been printed in the *Morphologisches Jahrbuch,* of which Gegenbaur was the editor. It was the duty of the publisher, Engelmann in Leipsic, to get out a separate edition of the paper, with its own paging and with title-page setting forth its character as a dissertation for the Ph.D. degree at the University of

Heidelberg. Having received and paid for this special edition, it was incumbent upon me to deliver 180 copies to the University for free distribution and, if this were done within six months of my examination, I should receive a rebate of seventy marks, an important sum to me then. Owing to Gegenbaur's long illness, all these proceedings had been greatly delayed and my time of grace had long expired, when, at last, the dissertations arrived from Leipsic in July 1881, more than a year after I had taken my degree.

I thought it unfair that I should be punished for Gegenbaur's illness and, therefore, prepared a memorial to the "High Philosophical Faculty" (of course, with competent advice as to the exceedingly formal phraseology required), explaining that the delay was due to no fault of mine and requesting that the rebate should be granted to me, notwithstanding the belated arrival of the dissertations. Dr. Schady, chief librarian, to whom I showed a copy of the paper, said he thought I was entitled to the money, especially as the work was of a kind which the University liked to send out (gern verschickt) because of its beautiful coloured plates. That didn't strike me as having much bearing on the justice of my claim, but "any port in a storm," and if that consideration would be helpful, I was quite willing that my advocates should make use of it. Eventually, I received the rebate.

My attempts to deliver the dissertations were described in a letter of July 29. "I had a funny experience of German officialism yesterday afternoon. I had to take my dissertation to the University, 180 copies, which made a pretty heavy load, even for a stout Dienstmann. I had them carried to the Secretariat, as I had been officially directed to do, but there I was told that they must go down to Herr Gredel, who had charge of these things. Mr. Gredel at once sent them over to the library and Dr. Schady, at the library, at once sent them back to Herr Gredel. The latter gentleman was furious and cursed and rent his garments and threw ashes on his head, after the manner of the Orientals, remarking that there were some people for whom a 'Donnerwetterschlag' was the best thing possible. Nobody seemed to know what his business in the matter was, but thought that some one else would, or ought to know. I finally left the things in disgust and turned them over to the Bedell."

I was immensely charmed and flattered to receive a visit from Balfour on his way home from Switzerland, an event which I can best describe by reproducing part of the letter of July 28. "My writing has been interrupted by Balfour's visit. He arrived on Tuesday afternoon (July 26) and I went to the station to meet him. He is very brown and

sunburned and looking very much better than when I last saw him. Of course, I was delighted to have a glimpse of him again. He stayed until this morning and, as you may imagine, I did not do any vast amount of work, while he was here. On Tuesday, we went about together and visited a number of his friends here and, in the evening, at Prof. Kühne's invitation, we went to a 'Kneipe' in the Café Leers. . . . Yesterday, also, was chiefly spent with Balfour. In the morning, he came to the laboratory and we worked over some points of common interest together. . . . In the afternoon we took quite a stroll, up to the Castle and from there, to the Molkenkur. . . . The fear of a shower sent us scrambling down the hills and, reaching town in safety, we went to call upon the Pacha. . . . We stayed only a few minutes, of course, and then went off for some more calls. Every one received him with open arms. He is, indeed a splendid fellow and, when I am with him, I feel very insignificant.

"In the evening, we were both invited to tea at Professor Kühne's. I enjoyed it greatly. The famous physiologist is an immense man, and weighs 256 pounds! but is as jolly and full of fun as he can be; his wife is very pretty and very pleasant (a German friend of mine called her 'eine sehr liebe Frau'). Balfour is always brilliant and so we had a jolly party. The only drawback was that we stayed so long. I couldn't make the move and Balfour wouldn't, so we stayed on until twelve o'clock. I am sleepy enough today, for having been up so late the last two nights. Balfour went off to Jena this morning at 9.05, I, of course, going to the station to see him off. I hope to see him again in England, on my way home."

This was the last opportunity for real companionship with Balfour that I ever had, for, though I saw him again at York a few weeks later, there was little opportunity for more than casual greetings, as he was very busy. In Heidelberg, however, I had him largely to myself and, as he was my hero in those days, I enjoyed his society more than I can express. Our association was on a basis of entire equality, for he never put on the least "side," never seemed to think that he was "anybody in particular." In our technical discussions, he always treated my opinion with respect, however much he might disagree with it. On the other hand, I was always careful to maintain a respectful attitude toward him and always called him "Mr. Balfour." I was often tempted by his good fellowship to drop the "Mr." but I thought: "If he would like me to drop it, he would tell me so," but he never did.

His visit to Heidelberg was a high compliment to me, for it did not lie in his usual route from Switzerland to England, and I, needless to say, was immensely gratified. After he had told me something of his experiences in the Alps, I besought him to give up his perilous mountaineering, almost going on my knees to him in my extreme anxiety. I said: "You have no right to run such risks; your life belongs to European science, not to yourself, and you are wrong to imperil it without necessity." But he replied: "There is no real danger in my climbing and, besides, it's the only thing that does me any good. A vacation in the Alps sets me up for the winter's work as nothing else will." I remained unconvinced and my fears were prophetic, for my dear friend was killed the following summer, when I was in the Bad Lands of South Dakota.

In the spring of 1888, almost six years later, at a dinner table in London, I met Sir Martin Conway, who had started to Switzerland as soon as the telegram announcing the catastrophe had reached Balfour's friends in England. With melancholy interest, I listened to his account of finding the bodies and his explanation of how the accident had happened. With only a single guide, my friend had attempted the very difficult ascent of Mont Blanc from the Italian side. When far up on the side of the mountain, one or the other had slipped and fallen, dragging his companion with him. They fell for more than 1,800 feet; it was consolation to know that death had been instantaneous.

As the summer began to draw toward its close, I felt compelled to work longer and longer hours. On August 3, I wrote: "I am about half-dead tonight, as I have been working almost steadily since seven o'clock this morning and now I am only fit for bed. As the time of my departure begins to be thought upon, I grudge every minute away from my work. I am getting on well, but, still, not so fast as I should like. Every day I seem to do only about half of what I ought to do. . . . I have just come from the other side of the Neckar, where we all went to see an illumination of the castle. . . . And now, good night; I must go to bed, or I shall fall to pieces.

"Yesterday, I was surprised by receiving two calls from Professor Marsh, of Yale, whom I had never before met. He was extremely polite, asked me to dine with him, which I did and spent a very pleasant evening in talking over scientific matters. I met, at the same time, Baron von Osten-Sacken, who is a celebrated Russian zoölogist and, apparently, a very nice old party. Gegenbaur is off for Switzerland today and I shall see him no more."

A very interesting and novel experience was the farewell beer-drinking (Abschieds-Kneipe) which Davidoff gave on leaving Heidelberg. I have already told of the unusual style of invitation in which he asked me to come "ohne den verdammten Osborn." Some twenty men, professors and students, were assembled around the long tables of a beer hall and one feudal feature interested and pleased me; the servants of the zoölogical and anatomical institutes were also present "below the salt." As I detest beer, I was permitted to drink wine instead. Of course a great many songs were sung, toasts proposed and speeches made, some of them felicitous and witty, others not at all so. We sat down about eight in the evening and at one a. m. I left, together with several others; the *fifth* keg of beer was tapped as we left. To all appearances, nobody was under the influence of alcohol, yet they all calmly discussed the Katzenjammer that would inevitably afflict them the morning after.

I never attended a Kneipe of the corps students, but I have reason to believe that such occasions were much less decorous than Davidoff's. I once saw a corps celebration in the streets, when all the participants were exceedingly drunk. Ludwig Fulda, the well known German writer, who visited America some years before the War and came to Princeton on his travels, was very favourably impressed by the physical development of the American students and noted the complete absence of "beer faces" among them. As they expressed it themselves, the students all had glasses which they could not endure to see either full or empty and so they kept alternating between the two conditions.

Once more I left Heidelberg with great reluctance because of unfinished work and it was to be seven years before I saw it again. Three busy days I spent in London as the guest of Dr. and Mrs. Glover, but seeing none of my other friends; at South Kensington I found not a soul and this I should have regretted even more, had I known that I was not to see Huxley again. One evening, Dr. Glover had a number of his professional friends come to a very pleasant informal dinner. They told me that, in spite of encouraging reports, they did not think that President Garfield could recover, a judgement which was confirmed very soon afterward. I spent one night in Nottingham, visiting the family of a friend and going on to York the next morning; at some junction, I changed trains and made the mistake of relying on the label that had been pasted on my trunk, instead of attending myself to having it transferred to the Great Northern train.

When I arrived at York, my trunk was missing and I at once hunted up Balfour and asked him what I should do about it. He went with me to the station and took the matter vigorously in hand, playing the haughty aristocrat, as I had never seen him do before. The way he lectured those railway people and the abject manner in which they submitted to it showed plainly enough the oligarchial structure of English society. Memory retains a very clear picture of his handsome, high-bred, indignant face, as he laid down the law to a frightened official and so effectively that the trunk was delivered to me the next day.

That evening, I was a guest at the Red Lion dinner, a term which is a very elaborate witticism too long to explain. I had an immensely good time and met many distinguished people, some old friends among them, others seen for the first time. I was especially glad to meet Lord Houghton, better known as Monkton Milnes, as I heard so much of him. My namesake and colleague, W. E. D. Scott, had published some observations on that mysterious subject, the migration of birds, because he had had the good fortune to catch migrating flocks of identifiable species with the telescope at the smaller observatory on Prospect Avenue on a bright, moonlight night. The ornithologists at York were eager to hear anything I could tell them on the subject, which unfortunately was not much.

After attending some of the sectional meetings of the Association, I went on to Edinburgh and Glasgow and sailed from Greenock on the Anchor line S. S. *Devonia*. The ship was a great improvement over those in which I had sailed before, though far below the modern standards of comfort. We had a rather quick and smooth passage, with but little bad weather, and I enjoyed being with an uncommonly nice lot of passengers. We had remarkable displays of phosphorescence and a very brilliant aurora, to say nothing of glorious moonlight. Stopping a couple of days in New York, I reached home on September 20, for which day the entry in my diary reads: "The President is dead at last; *requiescat in pace*. The mourning is universal and very striking."

On September 29 I was an usher at Osborn's wedding, which was celebrated on Governor's Island, because the bride's father, General Perry, was stationed there. General Hancock, "the Superb," in full-dress uniform, was a very striking figure among the guests. A fortnight later, Speir and I went up to Garrison, to welcome the bridal couple home from their wedding trip. A beautiful garden party was the principal event of our visit. The Osborns were building a house in Princeton on the lot where the Cannon Club now stands. Till that should be

ready, they occupied a little house on William Street near the present site of the University Press. This little house they dubbed "la Casita" and had their letterpaper stamped with that name. The irrepressible Ord received a dinner invitation on this paper and addressed his reply to "Mrs. H. F. O., la Casita, in the Backstreeta," which was appreciated by no one more highly than by the victims of the jest.

After the Christmas vacation, my labours greatly increased, not only with more lectures, but other interesting occupations as well. In the first place, there was an informal little gathering, every Friday evening, in the zoölogical laboratory, which we called the Wundt Club. Sloane, Marquand, Libbey, Osborn and I met to read and discuss Wundt's *Physiologische Psychologie* and, when advisable, Osborn and I would give demonstrations of the brain and nervous system, with some of the simpler physiological experiments. Dr. McCosh, after courteously asking permission, attended several times and became so interested that he insisted that Osborn and I should give an undergraduate course in physiological psychology, Osborn to take up the anatomical and I the physiological part. I was most unwilling to go so far afield out of my own proper bailiwick, to say nothing of the increase in classroom work, for which I had not bargained. However, we could not resist the old gentleman's importunities and began to give the course in the autumn of 1882 and kept it up for several years, until the appointment of J. Mark Baldwin relieved us.

I had to be a good deal with Dr. McCosh that spring and gradually developed a warm affection for him; admiration for him as a great man, I had always had, but I was too much in awe of him, until he "gave himself away" to me so completely in my graduate year. From that time on, the more I saw of him, the more attached to him I became. He was a staunch and loyal friend and, while he might scold and abuse you himself, he would allow no one else to do so, and he was wonderfully free from every form of littleness. If he thought a man competent for a position, he would recommend him for it and help him get it, even though he knew that that man had vilified him unmercifully. His nature was on too large lines to be affected by such petty, personal considerations.

I shall never forget a scene in Dr. McCosh's library in the spring of 1882, when Osborn and I were calling on him with reference to some matter of business. The talk turned to the literary celebrities whom he had known in Scotland and he was telling us about De Quincey and his strange behaviour, when under the influence of opium. Suddenly

and without a word of warning, he let out a loud, inarticulate, animal-like roar that almost frightened me into a fit; not that I was in bodily fear for myself, but, for a moment, I was really afraid that the old gentleman had gone out of his mind. But he merely smiled and said: "That is the way De Quincey went on the last time I saw him; it was in the postoffice in Edinburgh."

A second club, which Osborn got up, was the Sketch Club, composed of both instructors and undergraduates, and of this, despite my very limited artistic abilities, I was a member. Our teacher was a young artist, who afterwards attained very high distinction both in Paris and New York, John W. Alexander, and he made the work very interesting and enjoyable. We made charcoal studies from life and a series of old men sat for us, much surprised that any one should want to reproduce their features. Two artists, Tom Clarke, of '82, and Harry Hall, of '84, graduated from this class and, at the end of the year, we held an exhibition of our work, which attracted much admiring comment. Even I succeeded in catching likenesses. Alexander was fascinated by the picturesqueness and historic interest of Princeton and he was insistent that I should write an article for *Harper's Magazine* on "Colonial and Revolutionary Princeton," while he would illustrate it.

Alexander's suggestion appealed strongly to me and I made a lot of preliminary studies, which I found delightful, in old books and pamphlets, finding the Witherspoon collection of eighteenth century pamphlets in the library particularly useful. I got so far as to write an outline sketch and spent a morning going about with Alexander and selecting spots for him to draw. The plan came to nothing, however, for I soon saw that to prepare such an article in any but the most superficial way would demand far more time and labour than I possibly could devote to it. I abandoned the scheme with regret, for I should have enjoyed doing it, had it been feasible.

All the spare moments of that spring, or so it seems in retrospect, were devoted to the task of raising funds for another expedition to the West. A number of students came to me to ask whether I should not be willing to conduct such a party, on the understanding that they would contribute a substantial proportion of the expenses. I hesitated to assume the responsibility and should probably have declined altogether, had I known how heavy those responsibilities were to prove. The decision of this question was one of the turning points in my life, though, of course, I had no suspicion of that; how seldom one does have! My final decision to accept the offered leadership was due to several considerations,

of which the chief one was to keep alive and vigorous the tradition of these collecting trips. Having no endowment for the work, the only way to finance it was to depend largely upon the students to supply the funds, but their contributions had to be supplemented with outside aid.

The task of raising the necessary funds had to be performed in the face of every discouragement, except from the interested students. At one time, when I was ready to give up hope of success, they came to me with an offer to increase their own contributions very materially rather than let the plan drop. Some people from whom I confidently expected help, not only refused to give any, but even went to the length of active opposition and tried to induce me to stay quietly at home, where I belonged. Of one Trustee, who had made great promises of help, I wrote: "All his promises and his bringing me four times to New York have resulted in one note of introduction." However, bit by bit, the necessary sum was got together.

Railroad transportation was the least of my troubles, for I had all the passes I could use and many more were offered to me. The New York agent of the Chicago and Northwestern Railway came out to see me and offered me transportation for the party over his company's lines. As I had made no application for such a favour, I was much puzzled by this spontaneous offer and asked the agent to explain it. He said: "It's good advertising. You people go out into our territory and write it up and excite the interest of a lot of other people, who want to go and see for themselves." The freedom with which railroad passes were given away in those days, until the Interstate Commerce Act put an end to the practice, was a scandal. When I first travelled over the Northern Pacific, in 1884, every passenger in the sleeping car had a pass.

Naturally, I wished to get from the Secretary of War permission to purchase from the army at the military posts such supplies and equipment as we might need. This privilege had been granted to the preceding expeditions and would be so great a saving to us that it was a matter of necessity to secure it. I hoped to do this through the mediation of my Uncle David Hunter, a retired Major General. Accordingly, I went to Washington and asked my uncle to present me to General Sherman, then in command of the army. The old gentleman liked to poke fun at me occasionally and so the introduction was made in mock pomposity and in terms somewhat as follows: "General Sherman, I would like to introduce to you my nephew, Mr. Scott; he is a professor at Princeton and a doctor of philosophy of a German university!"

"Uncle Billy" wheeled around in his swivel chair and, looking keenly at me over his glasses, exclaimed: "God bless my soul! all this so young! What's left for you, when you arrive at years of discretion?"

Having shot his bolt at me; General Sherman looked over my application and wrote an endorsement of cordial approval. With this powerful backing, I had no difficulty with the Secretary, who was, I think, Mr. Robert Lincoln. If not at this time, then subsequently and on a similar errand, I had a very pleasant interview with Mr. Lincoln. He said that he thought it was the duty of the Government to aid science whenever practicable, especially in such matters as were covered in my application.

When I returned home, I related my experience with General Sherman greatly to the amusement of the family and especially of my Uncle, Colonel Stockton, who had known "Uncle Billy" in the Civil War. My Mother, on the contrary, didn't like it at all and, going off on some visit shortly afterward, she wrote me a letter, in which she said: "I must ask you please not to tell that story again—it sounds so conceited, on your part." Vanity, conceit, presumption, or pushfulness in any guise, were anathema to her and any manifestation of them by her sons annoyed her past endurance. I never saw the anecdote in the same light and so have not hesitated to tell it here.

It may seem that I was a very cool and recreant lover, thus to desert my promised bride for a second summer and that she was not much better, when, in the following autumn, she ran away to Germany for a year. But such seeming is deceptive; in both cases the separation was demanded by a sense of duty. It was no yearning for the "great open spaces," no desire for "the simple life," that sent me to the West year after year. The discomfort of camp life, the pains of rheumatism and sunburn, the difficulty, often the impossibility of bodily cleanliness, to say nothing of the separation from my family, combined to make these expeditions a hardship, but, as will be explained later there was compensation in the enduring delight of discovery, in pushing forward the frontiers of knowledge.

CHAPTER FIFTEEN

WESTERN EXPEDITIONS

FROM 1877 to 1893, I made ten collecting trips to the Far West, beside two others which were undertaken for different purposes. Two of these, 1877 and 1878, in which I was a private, have already been described. The other eight, which were under my leadership, may be brought together in one chapter, instead of distributing them chronologically through my narrative.

EXPEDITION OF 1882

The party left Princeton on June 26 and proceeded to Cheyenne, Wyo., the acquaintance of which we had made four years before. We found it improved out of recognition and a very pleasant place of sojourn. Cattle ranching was then in its hey-day and Cheyenne was the centre and shipping point of a very large area of cattle and horse ranges. Many of the cattlemen were gentlemen in every sense of the word, and the Cheyenne Club, at which I was put up as a guest, was a very agreeable resort, not only because of the creature comforts, but also because of the good company to be found there.

The party was composed of six students, Professor Magie, of the physics department, and myself. Magie was enamoured of the "Wild West" and accompanied me on three of my trips, though he professed no great interest in palaeontology. It was all important to get the expedition into camp and thus put an end to ruinous hotel bills and the first step toward this was to find a camp cook. We found a prize in Proctor, the second best of the many camp cooks I have employed. The first in rank was Charlie, a trained professional whom we had on the trip of 1891. Proctor was a great talker and kept us amused for a while, but was so profane and foul-mouthed that I could not record much of his talk here, even if I remembered it. I had got a camp established at Chalk Bluffs over the Colorado line, where some fossils, such as they were, were to be found. There the party remained until I could get

together the necessary horses and mules, as we had more than two hundred miles to travel, before we could begin work in the Bad Lands of South Dakota and at that camp the one anecdote of Proctor that is worth recording was enacted.

I should begin by saying that he had a great contempt for Kansas, which he always called "bleedin' Kansas," a term that dated from the bloody fighting of the pro-slavery and anti-slavery settlers before the Civil War. Our camp was very near the old "Overland Trail" and, one evening I saw, topping a rise far to the eastward and brightly lighted by the level sun, what I took to be a buggy and, in astonishment, exclaimed: "What, on earth, is a buggy doing out here?" Proctor immediately rejoined: "Buggy! hell! that's some dam' sod-pelter from bleedin' Kansas. Wait till he gits up here in the mornin' and you'll see he's got six dogs." "Why! Proctor, what's the connection between poverty and dogs in Kansas?" "Down in Kansas, a poor man's got one dog, a dam' poor man's got two, and a poor, God dam', lousy son of a — has got six." When the sod-pelter passed our camp the next morning, the number of his dogs, by actual count, was five.

A series of letters, describing in minute detail, the events of the 1882 trip, is before me, but though these are of intense interest to me, they could hardly fail to be tedious to any one else. I shall therefore, construct from them, a much abbreviated narrative.

The first stage of our long march was to Fort Laramie, ninety miles, which took us five days to cover, because of the long stretches of deep sand through which we had to pass. Fort Laramie itself was of great historic interest; originally a fur trader's station, it had been bought by the Government and converted into a military post, but the old, fortified enclosure, built of sods, or adobe, was in use as a corral. Of all the garrisoned military posts that I have ever seen, Fort Laramie was the most neglected and ill-kept and I saw there a striking illustration of the incredibly foolish way in which the army administration at Washington mismanaged its affairs.

The equipment which we had drawn from the State Arsenal at Trenton was "Civil War stuff," much of it very rickety. They had issued to us felt saddle-pads, which, by the time we reached Fort Laramie, were dropping to pieces. I applied to the Quartermaster to sell me eight saddle-blankets and he invited me to come with him to the storehouse and select a lot for myself. We opened a new case and I took out a blanket; noticing a large wet spot, I poked it with my finger and ran my hand through the blanket, as though it had been wet paper. One

after another was found to be rotted in the same way, but, occasionally, there would be a sound one and, out of a couple of dozen, I managed to get eight serviceable blankets. Completely bewildered, I asked the officer what could be the meaning of such an extraordinary state of affairs and he told me to look at the roof. That structure had large holes all over it and must have been a very ineffective means of keeping out the weather. The Quartermaster went on: "The people in Washington won't give me the money to mend the roof, while thousands of dollars worth of stores are ruined for want of protection." That was the most flagrant case that came under my notice, but I saw enough to show the need of a radical reform of the army administration.

Letters, official and personal, had been given me to the post-commander and surgeon. The former, General Merritt, Colonel of the 5th Cavalry, was one of the most distinguished of the younger cavalry leaders of the Civil War. Both he and Mrs. Merritt were exceedingly kind and helpful to us, nothing daunted by our disreputable appearance. The post-surgeon also, Dr. H. O. Paulding ("Hop"), whose early death was deplored by a wide circle of friends, and Mrs. Paulding endeared themselves to us all by their unstinted kindness and hospitality. Dr. Paulding's memory was a treasury of army yarns and I am sorry that I can remember but two of the many stories he told us.

Both of these tales referred to an old staff officer, of high rank, who had the reputation of being the most profane man in the army and, like many such people, was quite unconscious of the language he was using. He was accustomed to tell a story of his wife and daughter that awakened the wildest hilarity among those who knew the ladies and yet the General himself never understood why people thought it so funny. A bowdlerized version would be somewhat as follows. The General *loquitur*: "One night I heard the damnedest racket in my wife's bedroom; I ran in there and found my wife standing on one chair and Sallie on another, both with their skirts gathered tight around them and yelling to beat hell. 'General,' says my wife, 'there's a God damned rat in here.' 'Yes, father,' says Sallie, 'you kill the dam' son of a — '." And so the tale meandered on, attributing the most awful language to a couple of ladies who could no more have talked like that than they could have walked down the street on their hands.

The other story related how a civilian once came into the General's office and asked for some favour which was refused. The visitor intimated that he had done many favours for the General and thought he might ask something in return. That was too much; the old man

jumped to his feet and loudly thumping his desk, shouted: "I'll have you understand, sir, that I'm under no oblibegoddamgations to you, or any other man, sir." Cincibegodnati was also attributed to the General's haste to swear. He was said to be the only officer who "swore between syllables."

Leaving the shady comforts of Laramie, we moved over to Fort Robinson in Nebraska, where we were received, as almost invariably at the army posts, with the utmost kindness, and a vacant set of quarters was assigned to our use. We were detained here some time by delay in securing a wagon and team, as, previously, we had made only temporary arrangements, from Cheyenne to Fort Laramie and from Laramie to Robinson, but now it became necessary to secure transportation that we could keep for the remainder of the season. While waiting, we made an excursion to some bad lands about ten miles away. All the party, except myself, were carried in an ambulance; I rode my horse and the post-trader's son, Ben, mounted on a big condemned cavalry horse, rode with me as guide. We collected some good fossils, ate our luncheon and started back to the post, the ambulance going by the circuitous road, Ben and I by a much shorter route across country.

A violent storm of rain and hail caught us and as such storms are often only a few hundred yards wide in that semiarid region, we started to gallop through it, when, to my horror, I saw Ben's horse fall with him and saw the boy lying motionless, on the ground, apparently dead. I jumped off my horse, unfortunately neglecting to throw the reins over his head. Happily the boy was not dead, merely stunned, and the cold rain soon revived him; the horses, however, would not let me catch them and so I got Ben, half carrying him, down to the road. There I speedily met a man driving a light wagon and a pair of horses, the meanest man I ever met, who refused to stand for a few moments, until our horses should come to his wheel. All broken horses in the cow country will come to a stationary wagon, but this kindly soul, though seeing that my companion was badly hurt, would do nothing. Saying: "Oh! I guess I can't help you any," he whipped his horses and left us. Most fortunately, the ambulance was still behind us and soon came up.

In all my wanderings through the Far West, that was the only time I met a man who did not gladly volunteer help to any one who needed it, not to mention the refusal to help, when asked for it. In so thinly settled a country, mutual help was often a matter of life and death and no man could foresee when he might stand in desperate need of it

himself. When I told of my adventure to a group of ranchmen in the trader's store at Fort Robinson, they were extremely indignant and exclaimed: "That must be So and So, no other man about here would act like that." Had the ambulance been ahead of us, as I thought it was, our predicament would have been serious.

At Fort Robinson I fitted out for the trip to the famous White River Bad Lands of South Dakota, known to geologists the world over. It was to them that the term bad lands, a partial translation of the French *mauvaises terres à traverser,* was first applied; it was subsequently extended to regions of similar topography, as, for example, the Bridger country of Wyoming, where we worked in 1877 and '78. As early as 1746, the *mauvaises terres* of the White River were crossed by la Verendrye, a French Canadian. Colonel Sumner gave me an army wagon, but could not supply the mules and I, therefore, hired a four-horse team from the post-trader, for which we paid $10 a day, including the driver's wages. General Sheridan, on whom I had called at his headquarters in Chicago, gave me an order for an escort, if I should like to have one, though he said that the White River country, where we proposed to work, was entirely safe.

I took the escort, a sergeant and five men of the 9th Infantry, who travelled in a light "escort wagon," drawn by four mules. We thus formed quite a cavalcade of two wagons, sixteen men, twelve horses and four mules. Colonel Sumner gave me a copy of his order to the sergeant in command of the escort; it directed him to "report to Professor W. B. Scott and be under his orders and instructions until relieved." This was altogether illegal, for neither the Colonel, nor General Sherman himself, could give a civilian authority to command troops and the sergeant knew this as well as any one. While always polite and respectful, he paid small attention to my "orders and instructions" and did about as he chose. He took very good care not to quarrel with me and be sent back, for the men were all enjoying the outing and the freedom from the monotony of garrison life, but short of that, he was politely insubordinate and would do nothing that I suggested.

Our next stage, of sixty miles or so, to the Pine Ridge Indian Agency, we made in two days, despite the intense heat and stifling dust. For the first time in my life, I found myself among a multitude of Indians, many thousand, in fact, Sioux chiefly, but also Cheyennes and Poncas. For all of us, it was an extremely interesting and novel experience. We had the good fortune to see the Cheyenne sun dance and though the Government had put a stop to the mutilations in which the dance

normally culminated, it was a most weird and curious spectacle. Another strange sight was beef-issue day, when steers were driven out of a corral, while an old Indian, with a voice like a trumpet, called the names of families to which each animal was assigned. Then mounted Indians chased the cattle over the plain and shot them down with rifles. To the participators, beef-issue day was the pale and feeble revival of the vanished glories of a buffalo hunt.

While at Pine Ridge Agency, I was the guest of the agent, Dr. McGillicuddy, one of the best-known men in the Indian service. On starting out for the bad lands, I asked him whether he had any advice to give us concerning our conduct, while we were on the reservation and he replied that he had emphatically. "These Indians will kill you in a minute," he said, "if they can do it and not be found out, though they know that I will punish them, if they are caught. I would therefore strongly advise you never to let any one leave camp unarmed, never to send out less than two men together and always to be on your guard against treachery." From Joe Richard, our half-breed guide, who had married a squaw and lived among the Indians, I learned that there were two opinions about us, both equally dangerous. One party believed that we were locating a railroad and the other that we were in search of gold. Past experience had taught them that railroads or gold mines meant the loss of their lands.

Joe also told us a myth which expressed the Indian belief concerning the fossil bones so common in the bad lands. I have never been able to verify this and give it for what it may be worth. According to this tale, the fossils occasionally come to life and go hunting with a magic gun, which never fails to kill, even when fired around a corner. The Indians search for this mystical weapon, believing that, if they could rub their own guns with it, their weapons would acquire the same magic properties. I did not learn whether the Indians suppose that the fossil bones are those of men, as I presume they do, for such a belief is very general among unlettered peoples. Forsyth Major told me that in 1888 he had been driven out of the island of Samos by the infuriated inhabitants, who were convinced that the fossil bones which he had been excavating were those of their ancestors.

Our first collecting camp was on the White River, which was most uncomfortable, hot, infested with mosquitoes and flies and with bad water. As we left it, I observed a board, put up by one of the soldiers, on which was neatly lettered "Camp Misery." Crossing White River, we went up on the grassy "bench" between the White and Cheyenne

Rivers and there, under very much pleasanter conditions, we made our permanent camp and remained there, until we started homeward. Our water we drew from Ash, or Harney, Spring; the latter name given in commemoration of the burning of General Harney's wagons, when the Sioux surprised his train at that spot. Several rusty wagon tires were still lying about, when we camped there. The water of the spring, though cold, had an unpleasant taste of rotting vegetation and, to guard against malaria, we all dosed ourselves with quinine, for belief that the infection of malaria was transmitted by drinking water was prevalent then and for ten years later.

Needing some supplies, I took the escort wagon and mules and drove back to the agency and, as the distance was fifty miles or more, it was necessary to make one camp on the way. While we were sitting around the campfire, an Indian appeared and, after we had given him some supper, he handed me his papers, as was then the universal custom of his people. The papers showed that the bearer had been a regularly enlisted scout of the 7th Cavalry and had been honourably discharged. He knew a little English and I made him understand that the 7th was the regiment of my brother, Lieutenant Scott. The Indians called him "Captain Metal Eyes," because of his spectacles, which were much less common in the army then than they are now. When this Sioux warrior learned who I was, he showed great excitement and fairly ran through the fire to embrace me. This was the first of many occasions, when I learned how great were the reputation and influence of my brother among the Indians.

The expedition was very successful in collecting fossils, obtaining an excellent representative series of the White River fauna, though there was but little in it that was new to science. One discovery, however, of capital importance we did make, the finding of the first five-toed Artiodactyl that had ever been seen. The Artiodactyla, I should, perhaps, explain, are the group of hoofed animals which includes the ruminants, camels, pigs, etc., and our discovery was so unexpected, that for some time I did not venture to publish it, fearing that our specimen was abnormal, like a six-toed cat. The finding of other individuals confirmed our discovery, which overthrew the theory of Kowalevsky, the great Russian palaeontologist, concerning the evolution of the hoofed animals. On the other hand, our collections were of great value to the Museum which had before had nothing representing that period of geological time. We boxed our fossils at the Agency and shipped

them to the nearest railroad by the wagons which brought in supplies for the Indians.

For a time, our party was in a situation of great peril from the Indians, who very nearly broke out in insurrection. Dr. McGillicuddy's warning to me did not mean that the Indians felt any particular animosity towards us, but rather expressed their sullen hostility to all white men. Old Red Cloud, one of the most important and influential of the Sioux chiefs, was also one of the most recalcitrant and difficult to deal with. The Agent, on some occasion, the nature of which I have forgotten, summoned Red Cloud to his office and when the old chief refused to come, he ordered Captain Sword, head of the Indian police, to arrest him. Sword refused to make the arrest and this was an alarming symptom, for, almost without exception, the Indian police have been faithful to their military oaths, even against their own people. Dr. McGillicuddy was firm and put Sword under arrest and also a white employee of the Indian Service, who had been insubordinate at the crisis.

These events created extreme excitement among the Indians and, for several days, the issue of peace or war hung in a very delicately poised balance. It was even reported that some of the outlying villages had gone on the warpath (as they actually did eight years later) and had annihilated the Princeton party. This alarming news was telegraphed East and appeared in some of the New York papers and, thus, I suffered the same fate as Jim Bridger, "the Injuns killed me." When I reached the Agency and learned the facts, I at once telegraphed my family that we were all safe and well and to pay no attention to newspaper reports. Happily, none of my kin had seen those reports and were much puzzled by my telegram. The situation continued to be full of danger for some time, but Dr. McGillicuddy's firmness gradually won the victory and the excitement died away, but not before we had left the reservation on our way home.

As I sat on my horse on the rocky crest of Pine Ridge, and saw the line of wagons and horsemen far away to the south of me, all out of the Indian country and all safe, it literally seemed as though a heavy weight had been lifted from my shoulders. Until then, I had not realised under what a severe strain of anxiety and sense of responsibility I had been labouring for weeks past. To think that some error of judgement on my part might have had to be paid for with other men's lives, was a heavy burden; how heavy, I did not fully comprehend until it was

removed. It was with a light heart that I spurred my gallant little bay to overtake the column.

Our march to Fort Robinson was without any unusual incident and, leaving the last camp before the others, I rode into the post about seven o'clock in the morning, just as Colonel Sumner was coming out of his quarters. When he caught sight of me, he stared at me openmouthed, as though I were a ghost, and finally stammered out: "Why! Great God Almighty, man! I thought you were dead." He then proceeded to tell me of a Mexican, who had come to Robinson and told the Colonel that he was a nephew of Sr. Romero, the Mexican Minister at Washington. This worthy had told an absurd yarn of his having been my camp cook and declared that, when the Indians attacked us, I had "set him afoot" and run away, leaving him behind. This proved to be his salvation, for the Indians had pursued us and killed every other member of the party, but allowed him to escape. The Colonel was so affected by this tale of woe, that he lent the victim fifty dollars to reach Washington and the Mexican legation. I said: "Colonel, you've been done brown; the fellow was a swindler whom I never saw, and you're not likely to get your money back."

The whole adventure had an amusing sequence some months later. My Mother had always been fearless; when a little thing, as she laughingly told us, her timid older brother had taken her as an escort, armed with a fire shovel, when he went to explore the perilous wilderness of Bayard Lane. When his father tried to laugh him out of his fears, saying: "Alexander, aren't you ashamed to let your little sister protect you? She isn't afraid," the little hero replied: "Father, Mary hasn't sense enough to be afraid." Whether or not due to lack of sense, Mary was never afraid of anything and, possibly on that account, she used to profess the utmost contempt for physical courage, declaring that it was an animal quality, often nothing more than the lack of imagination. For moral courage, on the other hand, she had the greatest admiration, but that was not because she lacked it herself.

At the Morven dinner table, one day, when she was talking in that vein, I saw a chance to "get a rise out of her" and, at the same time, learn her real, inmost thoughts on this question and so I craftily said: "Mother, you know that, last summer, the lives of twenty men were dependent on my good judgement, don't you?" "Yes, so I have understood." "Well, now, be frank and tell us whether you would rather have had me show the white feather and run away, leaving those men to their fate, or be brought home dead?" Without an instant's hesita-

tion, she replied: "Why! dead, of course." A shout of laughter all around the table, in which she couldn't help joining, let her know how irretrievably she had wrecked her philosophy of courage.

To return to Fort Robinson, Colonel Sumner was very urgent to have me give a lecture to the garrison on the work of the expedition and what it was all about. I was most reluctant to attempt this, having never given a public lecture before, but the Colonel had been so exceedingly kind and helpful to us, that I felt obliged to meet his wishes to the best of my ability. Even had I been an experienced public speaker, I should have hesitated long before undertaking to talk popular science before so heterogeneous an audience of such different grades of education; officers and their families, several hundred enlisted men, civilian employees, domestic servants, etc. I could not appear on the platform in the shabby and worn garments that I had been wearing all summer and so borrowed from friends among the officers enough civilian garments to make a respectable *ensemble* and this, with a shave and haircut transformed me beyond recognition, though a pair of Quartermaster's brogues struck a very discordant note.

The lecture was given in the chapel schoolhouse, which was crammed to capacity. Life in those small Western garrisons was very monotonous and, when any sort of change or distraction offered itself, it was eagerly taken advantage of. A speaker, if he has had any experience at all, can always know whether he is holding the interest and attention of his audience and, that evening, though I began in great trepidation, I was soon put at my ease by that unmistakable feeling of *rapport* with the listeners. That feeling, much more than the complimentary things that were said to me after the lecture, gave me the assurance that I had succeeded in interesting the very heterogeneous crowd. Thereafter I could undertake public lecturing with confidence.

In the following Christmas vacation I visited, at South Orange, the family of Frank Speir, whose younger brother, Bob, had been a member of the expedition. Mrs. Speir, who was a great tease, was asking me about that lecture at Fort Robinson, of which her son, Robert, had written her. I was incautious enough to repeat some laudatory remark which an officer had made to me, whereupon she replied: "What a very tactful person he must have been!" which served me right for swaggering.

Now, that we were fairly started homeward, we all grew terribly impatient to be gone and have done with the tedious journey. With a brief stop at Fort Laramie, where we enjoyed the renewed hospitality

of our friends, we pushed on with uncommon speed to Cheyenne and the Union Pacific Railroad. Some delay was occasioned there by winding up our affairs, paying bills, selling our horses and the like, and thence we scattered to our several destinations.

On a previous page, I remarked that the decision to undertake the expedition of '82 brought me to a parting of the ways, because, thenceforward, it made my line of research almost entirely palaeontological. The successive expeditions supplied me with new and valuable material, which called for description and publication. In 1882 and '83, Osborn and I published a series of papers, some individual, others of joint authorship, dealing with the more important discoveries of 1878 and the fossils collected in 1882 formed the subject of memoirs published seven years later. The work of cleaning the specimens and freeing them from the enclosing rock in which they were found and mounting them for exhibition took a great deal of time. This work was admirably done by Dr. F. C. Hill, but, as he had no assistance of any kind, progress was inevitably slow and therefore the work of publication was always some years behind the field work of collecting the fossils.

In the autumn, shortly after our return home, I wrote a brief report of the expedition's work and accomplishment, addressed to Dr. Guyot, as director of the museum. In that document, after expressing our thanks to the various functionaries, military and civil, and to private persons who had given us valuable assistance, I paid a tribute to the students, who had worked steadily and successfully in spite of hardships and dangers. The report was printed as a small pamphlet and quite widely distributed. In England, it gained us only ridicule; one of the weeklies, I think it was *Nature,* spoke sneeringly of our having experienced "just enough hardship to make them feel like real explorers." This was to miss the point entirely; we did not feel like explorers of any sort, real or sham, for the country had been well known for more than a century. Ours was a collecting, not an exploring expedition and there was not a word in the report that justified the slur. Besides, I have always been curious to learn how the critic knew the exact amount and degree of hardship that we had undergone. In the winter of 1890-1891, some of our camping grounds were the scene of fierce fighting between the Indians and the troops, especially the 7th and 9th Regiments of Cavalry, a pretty plain demonstration of what we had narrowly escaped.

This was the only one of all the Western trips made by Hatcher, Sinclair or myself that was a complete failure from the collector's point of view; we obtained practically nothing. Nevertheless, the trip was an extraordinarily interesting one and there were many compensations.

My Brother, H. Lenox Scott, then a First Lieutenant in K Troop, 7th U.S. Cavalry, accompanied me on my journey to Fort Keogh, Mont., stopping in St. Paul long enough to visit Fort Snelling, Headquarters of the Department of Dakota. General Terry, then in command of the Department, was so kind as to order my Brother to escort our party with a detachment of his troop and to remain with us in the field as long as they might be needed. The General explained that this was no particular favour to us, but the policy of the Army was to encourage such field-trips for the junior officers, as giving excellent practice at small expense.

From Fort Keogh, we travelled up the Yellowstone River, keeping close to the south bank, to the confluence of the Big Horn, up which we turned to Fort Custer. So well were our movements timed, that my brother reached Custer only twenty-four hours after I did. He had no wagons and, using only a packtrain of mules, was quite independent of roads. We remained at the post for some days, to refit and rest our stock, have them shod and get a fresh supply of provisions. While we were at Custer, the ladies of the garrison had a picnic for us, driving in ambulances up the Little Big Horn to the Custer battlefield, where the 7th Cavalry was so nearly wiped out in 1876. Lenox had had the sorrowful duty of burying the dead on the battlefield and so could explain the action. The ground was still covered with the bleaching bones of the slain horses.

The Crow Indian Agency was near Fort Custer (I say *was,* for Custer has vanished from the earth) and there we got White Bear, a Crow and an enlisted scout of the 2nd Cavalry, who was ordered to join us for the summer. He was especially recommended to us by the interpreter at the agency, because he knew "a right smart of English." This was a superfluous accomplishment, for my brother conversed fluently with him in the sign language, at which he was more proficient than any Indian. We all came to like White Bear extremely; he was a useful guide and when we got into country that was unfamiliar to him, he did not hesitate to say so. A white man, on the contrary, would have felt compelled to "put up a bluff" of knowing all about it. White Bear could not read, but he could make very good use of a map; if given a starting point, and could draw fair maps of his own.

Our objective that season was the Big Horn Basin of central Wyoming, where there is a vast exposure of the Lower Eocene (Wasatch and Wind River formations) from which Cope had made great collections, but we were not so fortunate. Many years later, my colleague, Dr. W. J. Sinclair, made several trips to the Big Horn Basin, with very important and valuable results, but we got hardly anything. Our main camp was on the Grey Bull River and there we had the very unpleasant experience of being washed out by a sudden flood. We were all in the great, conical, Sibley tent, which would hold eighteen men, where we had taken refuge from the rain, and were reading the accounts of the rescue of the Greeley expedition in the Arctic. The newspapers had just reached us and we were absorbed in them, when the alarm was raised and we had just time to get our bedding and equipment on to the "bench" when the flood arrived. It was an uncomfortable and even dangerous, but supremely ludicrous experience.

Our last week on Grey Bull was a time of scarcity, as our provisions were nearly exhausted. I had sent the wagon back to Fort Custer for fresh supplies, but the journey was long and slow. We lived chiefly upon an immense grizzly bear, which the soldiers had shot and which had a very disagreeable, strong taste, even in soup. Nevertheless, we were very glad to have it, as it was so very much better than nothing at all. Poor White Bear nearly starved at that time, for he could not venture to taste bear meat, or soup, for, to do so, would cause all his teeth to drop out, the bear being his totem and therefore taboo. His joy, when my brother shot an old buffalo bull, was pathetic and by no means entirely due to having secured abundant food. To the Plains Indians there was something almost sacred about the buffalo, their principal source of food, and White Bear had never expected to see another.

So long as he was with us alone and no strangers were present, White Bear was as jolly as a sandboy, always laughing and playing practical jokes. When we got into the Yellowstone Park and began to meet tourists, the change in his behaviour was fundamental and, to us, most amusing. He became the taciturn and aloof Indian of fiction, as wooden as any graven image; when a stranger spoke to him, he pretended not to understand and would make no reply. That behaviour of the Indian toward strange white men is altogether conventional, a mere pose, as I had learned from my stay among the Sioux two years before, and White Bear's confirmation of the hypothesis was complete.

When the wagon returned from Fort Custer bringing the first mail we had had for a month and a most welcome supply of provisions, we

prepared for our "packtrip" into the Yellowstone Park by cutting down our baggage to the irreducible minimum. As everything needed by twenty men for three weeks had to be carried on the backs of eight mules and on our own mounts, we had to go flying light and to subsist entirely on the field ration, supplemented by such fish and game as we could get. The army pack-saddle is the *aparejo,* borrowed from the Mexicans, and it requires very thick and soft blankets, which supplemented our bedding in a most acceptable way, for the nights were already very cold in the mountains. Our great Sibley tent had to be replaced by the little shelter tents, each man carrying a half-tent under his saddle. For personal baggage other than bedding, we were limited to what we could carry in our saddle-pockets; a change of underwear, some stockings, hair brush and tooth brush, were all that any one might have. Our rations consisted of hard bread, most nourishing and palatable of food, bacon, beans and coffee, or tea for such as preferred it. Everything that could be dispensed with was sent back to Fort Keogh in the wagon.

The route which we meant to take into the Park, was to follow up to its head the north fork of the Stinking Water which, above the sulphur springs, was a clear mountain torrent and did not at all deserve its unpleasant name. Then to cross the high mountains, variously called the Absaroka, or Shoshone range. In the latest official maps which we had been able to get, the country was marked "unexplored region," though General Howard and his command had gone through it on their long pursuit of the Nez Percé Indians from Oregon in 1877. The Absaroka range formed the great mountain wall, which blocked Captain Raynold's advance in 1855: Jim Bridger, who was acting as his guide, assured him that "a bird couldn't fly over that range, unless he carried his rations with him." We had very great difficulty in getting over, sometimes labouring a whole day to make five miles, but we crossed it eventually and felt that the wonders of the scenery richly repaid us for all our toils.

Our trip through the Yellowstone Park was a dream of fascination. On crossing the mountains, we came on the East Fork, now called the Lamar River, and followed that, past the petrified forests, to the main stream, which we crossed at Baronette's bridge and then, turning south, upstream, we went to the canyon, the falls, the lake and thence to the Upper Geyser Basin. On the lake beach my Brother picked up a flint arrowpoint and handed it to White Bear, asking him if he had ever seen anything like that before. No, he never had. Did he know what

it was? Yes, it was stone arrowhead. How did he know that? White Bear's answer has always interested me, as showing the value of oral tradition among people that cannot write. He said: "Our old men say that, a long time ago, our people had no horses and no guns, and they shot buffalo and other game with bow and arrow. As they had no iron, they made the arrowheads of stone and that's one of them."

Dr. Neilson, the surgeon of the party, and I had to be starting home and so we left the outfit in the Upper Geyser Basin under my Brother's charge. Though most eager to get home, I was yet reluctant to leave the party, which had kept together so harmoniously for so many weeks. I fancy that no member of the expedition ever forgot the experiences of that summer, or failed to look back on them with pleasure. We rode down to the Mammoth Hot Springs, leaving our horses there for the party to take with them and took the train for Fort Keogh, where I finished up my military business and we both got our baggage out of the storehouse. One day sufficed for this and we then proceeded to our homes as fast as the trains could take us, which, in those days, was at no very giddy rate of speed, if such a word can be used for their deliberate movements. A few fast trains had been put on in the East, but in the West the service was still very slow.

For each of the two succeeding summers, I went West for a comparatively short trip, short, that is, in time, though measured by results, those were among our most successful ventures.

EXPEDITION OF 1885

George Butler and Harry Paul, of the Class of 1884, who had been with me in the Big Horn trip of that summer, came to me the following year, with the proposal that I should take a small party West, for five or six weeks, as a vacation journey. I agreed to do this, especially as my dear friend, Frank Speir, was able to join us. Three of us went, by way of Denver, to Salt Lake City, and I was astonished to see how rapidly settlement and agriculture had extended westward through Kansas in the three years since I had last seen that region. At Chicago, I called on General Schofield, successor to General Sheridan, who received me very courteously and gave me the orders to post-commanders that I should need. It was well that I took this step, as, otherwise, we should have been in a position of great disadvantage, or, in terser phrase, "in a hole."

After a very pleasant visit to Salt Lake City, where each of us had friends, we turned back to Fort Bridger, which had been regarrisoned

since our visit in 1878. Arriving there on August 5, after arranging for our horses and equipment and getting ready to leave, we were joined by Speir, who, as a busy lawyer, could not start out with us. In one respect that stay at Fort Bridger was unique in my experience. On all other occasions, before and after that date, when we visited a military post, we were received with the utmost hospitality and kindness, but on that visit to Bridger we were ignored. As I wrote home: "I am rather disgusted with the way in which we have been treated here. Officially, everything has been done for us that I could ask, but no one has called on us, or asked us to their houses, or paid the slightest attention to us in any way. This is very different treatment from what I have been accustomed to at other military posts and I don't know what to make of it."

This indicates clearly, how much help we should have got had we not been provided with General Schofield's orders.

Our ride through the bad lands to Henry's Fork was, to Speir and myself, so familiar that it seemed incredible that seven years had elapsed since we last came that way. On Henry's Fork, we camped for a night at Lone Tree, on almost the same spot where our permanent camp had been in 1877. "About two o'clock, it commenced to rain and we had a nasty, cold storm that lasted into the night. Up on the mountains, it snowed at the same time and they were a glorious sight this morning, when the rising sun shone on them. The night was very cold and the tent was stiff with frost, when we took it down. Today, we have come about nine miles [to Burnt Fork] and I am writing in a store kept by one of our old guides [Sam Smith] a very excellent man, whom I wish we could have with us again. We have about sixteen miles further to go, when we hope to reach our permanent camp and begin work on Monday morning."

We worked first at Spanish John Meadow and then went over to Twin Buttes, on the top of which is the beautiful campsite which we first used in 1878, and there we were kept busy till nearly the end of the season. Our departure was hastened by the escape of two of our saddle horses, Butler's and mine, which pulled their picket-pins out of the rain-softened ground, for that was a very unusually wet season. We were puzzled by the fact that there was little rain on the top of the Buttes, yet nearly every day we could see it raining furiously all around us, especially in the valley of Henry's Fork.

Paul made a find that proved to be of first rate importance, though I did not appreciate this until the specimen arrived in Princeton and

was freed from the enclosing rock. It was clear that a lot of the skeleton had been left behind and more than ever did I anathematise those horses which, by running away, had prevented our getting out the rest of our prize. This was one of several reasons that took me back to Bridger the following year. Partly by walking and partly riding in the wagon, we dismounted ones accompanied the others back to Burnt Fork.

At a council of war, it was decided that I should ride into Bridger on a borrowed horse and see if our runaway steeds had turned up at their home ranch, while the others went up into the mountains on a hunting trip. We supposed that the season's work was over and I was, therefore, to wind up our business and have everything ready for departure, when the rest of the party should come down from the Uinta Mountains. However, things turned out very differently and so profoundly interesting were the subsequent events to me, that I have completely forgotten the issue of my quest for the horses. I presume that we recovered the wanderers, but remember nothing more on the subject.

At the little hotel at Fort Bridger, I had met a dentist, Dr. Whytock, of Salt Lake, who made periodical tours among his patients of the cattle ranches, to keep their teeth in order. While I was still at the hotel, packing up our baggage, Dr. Whytock came in from one of his tours, having travelled from Henry's Fork by the mail buckboard, and showed me a large fragment of fossil bone evidently freshly broken from a skull, as there were three clean, new fractures on three sides of the bone. I asked where the bone had been found and learned that it had been taken right alongside the road at the foot of the Henry's Fork Divide. "Did you leave any of it behind?" "Oh, yes! the ground heaved all around it, when I pried this piece off." I said: "I must ask you to give me that piece, for I am going back to get that skull, which evidently belongs to the genus *Uintatherium* and the loss of the fragments would mar the specimen." Without hesitation, he handed over the bone to me and said I was entirely welcome to it. The next morning I rode the forty miles back to Burnt Fork and waited for the others to come back from the mountains. Naturally, they were very much surprised to see me, but at once agreed to remain until we could get the skull out, for, as I told them; "there can be no doubt about it, I found the place and satisfied myself that the skull is there and nobody knows how much more; possibly, there's a whole skeleton there."

The next morning we moved camp up to Lone Tree, the nearest point on Henry's Fork to our find, where we spent one night on the way out, as previously described. The great skull was embedded in soft rock, on a small flat, where the mail road makes a steep plunge from the valley of Henry's Fork to the lower level of the Bad Lands' floor. That slope was known as the Henry's Fork Divide because it marked the parting between the drainage of Henry's Fork and Smith's Fork, both of which enter the Green River separately. As our time was short, we worked hard over the excavation of that skull, which, as I was assured from Dr. Whytock's fragments, belonged to *Uintatherium*, a member of the extremely strange and bizarre order of extinct hoofed animals called *Dinocerata*. These might be roughly defined as six-horned elephants, only, paradoxically enough, they weren't elephants and they hadn't any horns. We had secured one fine skull of these incredible beasts in 1877 and another, in the Bitter Creek country, in 1878, both of them found by Frank Speir. Now we had a third, better preserved than the others and retaining, as neither of them did, one of the great, scimitar-like upper tusks.

An argument against prohibition, or even temperance, might be deduced from this discovery. Had not the mail driver been drunk that day, as he almost always was, the find would, in all probability, not have been made till years afterwards. When the horses were going down Henry's Fork Divide (they had to get on without a driver) "Whitey" remarked to his passenger: "These buttes are all full of bones"; I omit the alcoholic forms of speech. When Dr. Whytock was sceptical, "Whitey" said: "I'll show you." Getting off the buckboard, he picked up a crooked stick and began scratching away the soil and then called to his passenger to come and see. He had exposed a strip of dark brown, fossil bone, from which the piece that Dr. Whytock brought in to Bridger was broken. There was no sign on the surface to guide "Whitey's" excavations and, not once in a million times, would such haphazard scratching lead to any result, but he had "drunken man's luck."

While still engaged on this skull, we were seated around the campfire one evening, smoking our postprandial pipes, when some one asked me what I thought the ancestor of *Uintatherium* would be like, when he was eventually discovered. Accordingly, I gave a descriptive sketch of my ideas on the subject, constructing a hypothetical beast which no one had yet seen, but which, if there were any truth in our evolutionary conceptions, must once have existed. The next day, while we were

enjoying our noon rest and smoke after luncheon, Speir, who did not like sitting still, got up and began to poke about in the little gullies and washouts around us. Presently, he called out that he had found something and asked us to come and look at it. It proved to be a well exposed skull, very much smaller than that of the elephantine beast upon which we were at work, but, if it had been made to order from my specifications, it could hardly have reproduced more accurately my hypothetical creature of the evening before. Many palaeontological predictions have been verified by subsequent discovery, but never, I think, was there one where verification followed so hard upon the heels of prediction, as on that wonderful morning, which, like "the proud Ides of Quintilis," should be "marked evermore in white."

I have often told the story of that day in classroom and public lectures, especially in discussions of evolution, and have always felt obliged to caution my hearers that prediction of that sort is no very wonderful feat, that it requires no stroke of genius, but can be made by any competent student of a particular group of animals. Often our predictions go astray because made from erroneous premises and, often, the verification waits long on the progress of discovery, but there are many cases in which the creature, at first hypothetical, has actually been found. I had the great pleasure of verifying a prediction made by my friend, Dr. Max Schlosser, of Munich, from material collected by our party in Utah in 1886.

Our newly discovered treasures were described and figured in a paper which I published in the following April; the big creature proved to be a new species of *Uintatherium* and I named it *U. alticeps,* while the small skull, which verified my prediction, belonged to a new genus and species and to it I gave the name *Elachoceras parvum*. It is a very surprising thing that these two skulls were not discovered long before we got them; they lay one on each side of the main road and within a few feet of it. I could have sat on my horse and, without moving a step, have tossed a biscuit, first on one head and then on the other. All the exploring and collecting parties, which had examined that part of Wyoming, Hayden's, Marsh's, Cope's, not to mention our own expeditions of 1877 and '78, had passed between those skulls, not once merely, but many times, and not till "Whitey," the mail driver, and his passenger, Dr. Whytock, stopped to examine the spot on August 30, 1885, did any one suspect the existence of these beautiful fossils.

In order to get out the large skull, we had to make an immense hole, five or six feet square and three feet, or more in depth. The pieces of

rock taken out were piled up in a rectangular mass, such as builders make of the bricks which they intend to use. In doing this apparently superfluous bit of work, I had a definite object in view, having already determined to return the following summer, if it were possible. Not only was there that beast left behind in Twin Buttes, to be got out, but I felt confident that there was much more of the *Uintatherium* to be found. We could not stay longer, as, for each one of us, our time was up.

By returning the following season, I could complete the work of excavating those two fine specimens and I could also get some measure of the rate of weathering and rock disintegration in that region. The extremely peculiar type of topography which is called "bad lands" requires the presence of two factors; first, a soft, easily destructible rock and, secondly, an arid climate, which prevents the growth of a protective covering of vegetation. The actual rate of weathering is very slow and the holes cut in the taking out of fossils persist for many years, especially if made in steeply inclined surfaces. The soil, which results from the disintegration of the rock, clings to the top and sides of the buttes and, when wet, forms an extremely tenacious mud, which sheds water like a tin roof. In the South Dakota Bad Lands I have seen a tremendous downpour of rain that continued for half an hour and yet penetrated the soil for less than an inch.

It is this tenacious, waterproof soil which protects the soft rock beneath and greatly retards the work of rock disintegration, and, now, this deep hole and the rockpile beside it would give me a chance to observe the rate of destruction of the unprotected rock. I may here anticipate my narrative so far as to say that, when I returned in the summer of 1886, I could hardly believe my eyes; the big cairn had weathered down into a low heap of mud and the even bigger hole was filled up to the brim with rain-washed soil. It was an astonishing result for a single year and showed how important is the protective rôle of the soil in retarding rock destruction. Were the soil washed away as fast as it forms, the bad land buttes would dissolve like sugar in the rain.

Just before leaving the Lone Tree camp, we had an amusing experience there. One evening, while we were at supper, a young "cowhand," hardly more than a boy, dropped in and, according to the universal custom of the country, we invited him to join us, which he did as a matter of course. For a while, he was very silent and reserved, but he evidently had something on his mind and I was curious to see what it would be like. Suddenly, he burst out with: "Say, what's a peterfied man worth?" Seeing that I should not wish to forestall him, he became confidential

and informed us that: "They tell me that anything that's buried in these yere bad lands for ten years gets peterfied. I know a place where a man has been buried for seven years and I think he must be pretty near done. I'm going to dig him up and see." I can only hope that he did not carry out his intention of opening that grave, for the ranchmen would have made short work of him for such desecration.

CHAPTER SIXTEEN

WESTERN EXPEDITIONS (CONT.)

EXPEDITION OF 1886

MY fifth Western trip almost came to grief over the difficulties of leadership, for it was imperative that I should be home before the end of July and Speir could not leave his work in New York any earlier than that. We finally agreed that I should take charge of the party for the first four or five weeks and then that Speir should come out and relieve me. The plan was for me to complete the unfinished work of the year before in the Bridger country and then for Speir to take the party over the Uinta Mountains into northern Utah, a long and toilsome march to a very inaccessible region. The Uinta formation is intermediate in time between the Bridger of Wyoming and the White River of South Dakota and very little was known of its fossils. We were, therefore, most anxious to obtain a collection of Uinta fossils and Speir was the man to do it.

I was delighted by a suggestion from Professor Sloane that he should join me for part of the trip and we travelled together as far as Julesburg, where he took the short line to Denver, then by the Rio Grande Western to Salt Lake, from there turning back to Bridger, whither I proceeded directly. I was very hospitably received, much more courteously than the year before, and was very busily occupied in assembling my transportation and equipment. When the students arrived, we started, after only one night's delay, to our camp on Smith's Fork, our almost invariable first station from the post. While we were eating supper, Sloane drove up in a buckboard, much to my joy, as we hadn't expected him for another day. He was the most jovial and helpful of camp companions and all the students were so devoted to him that they almost wept when he left us.

The next day we moved to the Lone Tree camp on Henry's Fork, where we had been so often before. Here there arose some delay owing

to the need of finding a cook and getting a couple of additional horses. Finally, we were able to get to work on the big beast, whose skull we had taken out the year before. On reopening the hole, we almost immediately began to find more bones. We discovered almost all the vertebrae of the neck, several of the back, a very perfect shoulder blade and some limb bones. The carcass must have lain on the ground and been pulled about by beasts of prey, until the bones were separated and scattered over a considerable area, and the next flooding of the rivers had buried them under layers of silt. With the crude methods of extracting fossil bones which were then in use, we could not avoid breaking a large bone into several pieces in taking it out. Each fragment was carefully wrapped in cotton, or tissue-paper, and the parts of a single bone, if not too large, were wrapped in heavy paper and tied up in a single parcel. The parcels, in turn, were packed in wooden boxes, with straw, or sawdust, for their long journey by wagon and rail to Princeton.

As the road, near which we were working, was very little used, we thought it would be safe to leave our paper bundles in plain sight, until we had finished the job and could send the wagon for the stuff, but, after we had returned to camp, a lot of wagons drove up and made camp just across the stream. They were Mormons migrating from Idaho to Utah and looked like a very rough lot. After their arrival, one of my students rode into camp in a state of great excitement, and showed me a piece of fossil bone, evidently from our collection, which he had picked up on the road. The emigrants had carried off our bundles, but disgusted to find that they contained only pieces of stone, had thrown them away. Eventually, we were able to pick up almost every piece.

After we had finished with *Uintatherium alticeps,* we started for Twin Buttes with a packhorse, leaving two men to act as campkeepers at Lone Tree. Once established in our beautiful grove beside the icy spring, I hunted up the spot where Paul had made his find of the year before, when the escape of our horses had forced us to leave Twin Buttes. When the few bones of that specimen had arrived in Princeton and had been cleaned up, I saw that they belonged to a rare and very imperfectly known carnivorous creature, which Cope had discovered in 1872 and named *Mesonyx,* and I was therefore most eager to return and get the rest of him, which I felt sure was in the rock still. This proved to be the case; we spent a week at the hole and got out a nearly complete skeleton including a beautiful skull. I wrote a paper on the discovery and, after forty years in a tray, Sinclair mounted the skeleton and it is one of the prizes of the collection.

Having accomplished what I came to Wyoming to do, I returned to the Lone Tree camp, bade my students farewell and rode into Bridger. I took with me, for company, Stewart Paton, who subsequently became a distinguished psychiatrist. He has never forgiven me and still twits me with my cruelty to him that day. On the journey, he told me that Scribner's contract with the Century Company would soon expire and that the new *Scribner's Magazine,* in which his brother William was interested, would appear that fall. For the opening number they had got hold of an unpublished lot of Thackeray's letters, which would start the new venture off with a bang.

In bidding farewell to Sam Smith, I little imagined that it was to be the final one. A very few years after this date Sam was pushing a criminal charge against one of his neighbours and rode out, one day, from Fort Bridger accompanied by two Mexicans. No one of the three was ever again seen alive in that region and, for months, nothing was certainly known of Sam's fate. Eventually, his skull was found and certainly identified and there can be no doubt that he was murdered.

Shortly after I had taken the eastbound train from Bridger, Speir arrived and took charge of the party. He brought with him his intimate friend, Nicholas Murray Butler, the future President of Columbia University. On the following 7th of September I wrote from New York: "I met Murray Butler on the elevated train, and had a long talk with him about the expedition, over which he is very enthusiastic. He reports magnificent results, but tells me that they had a good deal of annoyance from the Indians, who tried to drive them out. I am devoutly thankful that they are all out, safe and sound, and with such good accounts of themselves."

The year 1887 passed without a Western trip and this I did not regret, for there was so much new and undescribed material in the museum that I wanted to catch up with it before gathering new treasures. The vacation was passed quietly in Princeton with my family and, therefore, there are no letters of that time in existence. From April to October, 1888, we were all in Europe and, again, the collecting trip was omitted, but for the three succeeding summers, I spent longer or shorter periods in the fossil grounds.

EXPEDITION OF 1889

Concerning this enterprise, my feelings are very mixed. We worked in eastern Oregon, a most interesting, often beautiful region, of a type quite different from any that I had seen before, and we made a very

large collection from a period not represented in the museum, the John Day. All this would seem to be ground for unmixed satisfaction, but the fate of that beautiful collection was a tragic one. For several reasons, chief of which was the death of Dr. Hill in 1890, the cleaning of those John Day fossils was long delayed. A few of the finest specimens were prepared and mounted for exhibition, but the great bulk of the collection remained in the rough, in open boxes, which were stored in the cellar of Nassau Hall. When the new steam mains were put through that building, the fitters rifled the boxes, carrying off what struck their fancy and wantonly destroying the rest. The loss was irreparable, for it would not be possible to duplicate the collection in our time. The gems that were saved are enough to repay the cost and labour of getting them, but it is maddening to think of what was lost through the brutality of ignorance after all our trouble in gathering it.

As was the usual mode of procedure, I went out ahead of the party, to get the horses and equipment needed in a two months' trip. For some time it was doubtful whether we should be able to travel by the Pennsylvania Railroad. Shortly before, the valley of the Conemaugh River, through which that railroad runs, had been devastated by the bursting of a dam. This sent a flood of frightful destructiveness down the narrow valley, completely destroying the railroad. I don't remember how long it took to rebuild the line, but I got through very soon after the traffic was restored. I wrote of it: "Of course, a great deal of the wreck has already been cleared away and damage repaired, but what remains is simply appalling; houses shattered, the railroad torn up in all directions, the rails twisted and broken like wire, locomotives, in all stages of destruction, swept for miles, the whole valley strewn with cars, broken houses and mountains of débris of all sorts. The flooded part of Johnstown simply does not exist, having been swept as bare as the palm of your hand. It is an unspeakably dreadful sight, even at this late day."

This was the great Johnstown Flood, one of the worst disasters in the pre-War period of American history. Several thousand people (5,000, I think it was) lost their lives and there was an incredible amount of property destroyed.

I made a brief stop at Omaha, in order to attend to some matters of business, and was immensely impressed with the growth and improvement of the city that had taken place in the twelve years since I had first seen it. When I remembered what the place was like in 1877, the rows of shanties standing along bottomless mud-sloughs (by courtesy, streets), I could hardly believe my eyes. The remainder of the journey,

until I got into Idaho, was through very familiar country, which we had travelled, by rail, on horseback and even on foot, in 1877 and '78. One morning, as I awoke in my berth and pulled up the window shade, I recognized a peculiar little butte in the valley of the Bear River of Idaho, which I had last seen just after the famous and bloody Battle of Ham's Fork, the dangers of which I happily escaped.

My objective was Baker City, Ore., where I had arranged to meet L. S. Davis, a well known collector, who had worked for Marsh and Cope. He was one of the self-trained scientific workers of whom the old West was full, and was very like Sam Smith in many respects. The success of the expedition was very largely due to Davis whose knowledge of the country and of the fossil beds was very exact. He had lately built a sawmill and said that he could not give us more than a fortnight's time. In consequence of this, we bought no horse for him and he rode each man's horse in turn, the owner riding on the wagon that day. Fortunately, when the field work began, he could not leave it and stayed with us throughout the season and even prolonged it by making a trip to Crooked River for us after we had gone home.

While the series of letters that I wrote to my wife from the field in 1889 has been preserved intact, there is little in them of general interest. The John Day beds, which have not been found outside of Oregon, are, for the most part, buried under the immense flows of the Columbia River lava fields, one of the greatest of such basaltic areas in the world. It is only where the rivers, especially the John Day itself, which has given its name to the formation, have cut canyons through the lava, that the underlying beds have been exposed in long, narrow bands. In a few places, the river canyons have been widened out into basins of two or three miles in diameter and then the soft strata of the John Day have been weathered into bad lands. The country was much more settled than in the regions where we had formerly worked and it was difficult to find pasture for the horses. Our permanent camp was in "the Cove," a basin some two miles or more in width, in a beautiful pine grove and with abundance of water and grass. From this camp we sent out small parties to the spots where Davis knew that fossils were to be found.

To a very large extent, the country had been "sheeped off," in the expressive Western phrase. That is to say, the sheep had completely destroyed the grass, leaving great areas of trampled dust, in which no living thing grew. We came to have the same contemptuous loathing for a sheep that the cattleman had; for in that semiarid region, the

sheep simply destroy the country and turn it into a desert. We were fortunate in finding a camp-site which the sheep had not yet devastated and which was within riding distance of our work. The summer was very dry and we had but a single rain in two months, but all summer long we lived in a veil of smoke from the forest fires in the Cascade Mountains to the west of us. This curtain of smoke sometimes lifted, especially after a little shower, and made it possible for the photographer to get pictures; by perseverance, he managed to secure a fine series.

This photographer was Philip Ashton Rollins, of the Class of 1889, whose books on the cowboy have attracted such wide and favourable attention. That summer there began a friendship between Rollins and myself which has lasted till the present day, and to his generosity I owe the opportunity of accomplishing much work.

We found the climate less stimulating than on the high plateaus and plains of Wyoming and Dakota. In one letter I wrote: "Our progress was slow and we did not reach camp until long after dark, men and horses completely used up. The great difference that I notice between the climate of eastern Oregon and that of the regions where I have worked before, is that here one gets fagged out more easily and that the horses cannot do the same amount of work." Nevertheless, we accomplished a great deal, largely because we had few long marches to make. "The smoke from the forest fires in the mountains is becoming more and more dense every day. I am afraid that Rollins' photographs will be sadly interfered with and that will be a great pity, as this is a very curious and picturesque region and some parts of it are eloquent lectures on geology."

Before leaving the Cove, I must tell of a small adventure that I had, that might have had an unpleasant ending: it was almost a repetition of Osborn's experience on the upper Green River eleven years before, of which I told in a previous chapter (p. 80). It was the same story of the intense curiosity aroused in the half-wild range cattle by the sight of a man on foot; they do not attack a pedestrian, but close in on him, until he is thrown down and trampled to death. On this occasion, I was walking across a flat in the Cove, carrying a heavy load of fossils on my back. I saw a number of cattle scattered about and grazing and paid no attention to them. As they caught sight of me, however, they all, with one consent, began to move toward me and soon I was encircled by a ring of them, which kept closing in. I was badly scared, but knew that something would have to be done and that right speedily and, therefore, tried the only stratagem I could think of. Putting down

my load, I lowered my head and made a charge at the nearest steer, which, to my great relief, gave way and scattered the ring. It soon reformed and began to close in again, but, in the interval, I had made considerable progress toward my horse, and, by repeating the manoeuvre five or six times, was able to reach him intact. The moment I was in the saddle, the cattle fled like chaff before the wind; they knew very well what a mounted man was and did not desire his nearer acquaintance. It was a very fortunate circumstance for me that the bunch was small; for, with a herd, the inner ring could not have given way. Under such circumstances, death would have been sure.

Getting back to Baker City was a toilsome business, for the long drought had made the roads deep in dust. I had gone ahead to straighten out some complication concerning our railroad transportation. A couple of days later, I wrote: "Yesterday afternoon, the outfit arrived and rode into town in a compact column of twos, which created great excitement and commotion. It was the dirtiest-looking set I ever laid eyes upon. The collection has reached the very respectable weight of a ton and a half, which will keep Mr. Hill's fingers busy for a long time to come and fills me with serene satisfaction." Had I known what was to happen to that collection, my satisfaction would not have been serene.

We went by rail to Portland, Ore., and there the party broke up. I went down to California and paid my first visit to San Francisco and Monterey, a visit that had to be tantalisingly short. Then followed a swift dash across the continent, very different from the leisurely jaunts of ten years before.

EXPEDITION OF 1890

A trip to South Dakota occupied a few weeks of the August and September of 1890 and, though very short in time, it was memorable in several respects other than palaeontological, though from that point of view also it had a fair measure of success. As our outfitting and starting point, we selected Fort Robinson, Neb., which we had so toilsomely reached, on the '82 trip, by road from Cheyenne, whereas in '90 we went there directly by sleeping car, the extension of the Chicago and Northwestern system running through the post. By some accident, only a few of the letters written from the field that summer have been preserved and they have little to say concerning the work.

I travelled directly from Chicago to Chadron, Neb., where the sleeping car was put on a siding and taken on to Fort Robinson in the morn-

ing. My first letter was written on August 1 from Fort Robinson and says, in part: "This morning I awoke at Chadron, a town of several thousand people, with a number of solid brick buildings in sight from the station. In '82 I camped there and the only building in the place was a log ranch. The building of a railroad works marvellous changes in this region. I reached Fort Robinson this morning. I called on Colonel Tilford, who was most kind and insisted that I should stay at his house. The rest of the crowd will be in tomorrow morning and I must have some sort of a camp ready for them. Robinson has been greatly changed and enlarged since I was here eight years ago and I hardly know the place." Colonel Tilford gave me a small detachment of men from the 9th Cavalry and one of the post-surgeons, Dr. J. R. Kean, accompanied us for a time. "As he is one of the nicest men imaginable, we are all delighted to have him with us."

The party again contained my colleague, Professor W. F. Magie, whose love of Western camp life was inexhaustible. I received a visit from J. B. Hatcher, the famous collector, who was, at that time still in Marsh's employ, but came to Princeton three years later. Hatcher guided us to some good fossil locations near Robinson and, after giving me some very useful hints about the best way of getting fossil bones out of the rock, went away to his own proper work. From that camp, we marched up to and across the Cheyenne River, where we made our permanent camp. So long as Dr. Kean was with us, we found camp life much more luxurious than ever before. The students all slept together in a big Sibley tent, Kean, Magie and I in a wall tent, which was kept in order by one of the darkey troopers who accompanied us. I had had a folding camp mattress of felt made in New York and Magie and I found that a great improvement over sleeping on the ground.

At the town of Oelrichs we found two troops of the 8th Cavalry in camp. Captain Wells, in command of the squadron, made us guests at his mess and we found the novelties of ice and claret very refreshing. As I wrote in a letter of August 12: "The town of Oehlrichs is half-deserted, it being an instance of what one so often sees in the West, misapplied money and labour. All this region is wonderfully changed since I saw it last and is comparatively thickly settled now, but it is not fit for farms, as there is very little rain, and the people are wretchedly poor. Dr. Kean tells a story of a man on Hat Creek, who was asked how he happened to settle in such a country. He replied: 'Well, I came out from Chicago, with a return ticket, to visit my wife's brother and he offered me his farm for my return ticket. I took him up and ever

since I've been huntin' for some other dam' fool with a return ticket'."

When the work of collecting, very successful, on the whole, had been completed, so far as our time permitted, I made a short trip into the Black Hills, visiting Deadwood and Lead City and going out through the Elk Creek canyon. At Deadwood, I was surprised to meet a former student of mine, whom I remembered as having made a point of learning just as little geology as would enable him to scrape through his examinations. He was practising law in the Black Hills, where much of his business dealt with mining claims. He confessed his bitter regret at his folly in not taking advantage of his opportunities in geology. A newspaper correspondent asked me for an opinion as to the Harney's Peak tin mine and its prospects. I declined to express any opinion, as I had not seen the property and, even if I had, I did not pretend to be a mining expert. A few weeks later a friend in New York said to me: "I was glad to see that you refused to commit yourself on Harney's Peak tin," to which I replied, "What on earth are you talking about?" He explained: "In the *New York Sun's* letter from the Black Hills you are quoted as refusing to express an opinion on the tin mine."

I returned to Robinson by rail, leaving Magie to bring the party in. "Dr. Kean at once seized me and carried me off to his quarters, where a hot bath, a shave and clean clothes soon made me feel most comfortable." My letters deal extensively with baths and to one who reads them it might seem that I was dwelling unduly on matters of such everyday routine. But no one who has not experienced it, can conceive the joy and delight of bathing after a hot day, when the skin is dried out by hot winds and every pore is choked with an irritating dust. The daily morning bath at home is a very mild pleasure in comparison.

Before returning to the East, it will be convenient to bring together what I have to say concerning the disturbances among the Indians that fall and winter, which involved almost all the Plains tribes, though there were local differences of circumstance at the various agencies. The two troops of the 8th Cavalry that we met at Oelrichs were not there on a practice march, but because it seemed advisable to watch the western border of the Sioux reservation. Scouting patrols were constantly observing that border, without irritating the Indians by trespassing on their lands. Through whose fault it was, I do not know, but certainly the tribes at the Pine Ridge and Standing Rock agencies were suffering from insufficiency of food. One of the officers at Oelrichs showed me a letter which he had received from Laura Standing-Elk, a Cheyenne girl who had been educated at Carlisle, giving a very pathetic account of

the needy state of her father's family and asking that the ration be increased.

In addition to these local grievances, there was great and widespread religious excitement, in which there was a large element that was obviously derived from Christian teaching. The speedy coming of an Indian Messiah was promised, who would bring back the vanished buffalo and drive the white people into the sea, restoring the country to its rightful owners. In order to be ready for this great event, the Indians were exhorted to practice certain dances, wearing white sheets, whence the term "ghost dances," which spread all through the Plains tribes. They did not plan an attack on the whites—the Messiah would attend to their expulsion—but there was great apprehension among the white officials and employees at the agencies and, even in military quarters there was much nervousness.

In his *Memories* my Brother has told how he volunteered to go alone from Fort Sill, in Oklahoma, to the Anadarko agency, where an outbreak was threatened, or, at least, feared on the part of the ghost dancers. He was able to avert the danger, because the Indians had the greatest confidence and trust in him, for they knew that he had their interest at heart and had often championed them successfully against exploiters. The excitement at Anadarko died away and there was no bloodshed.

In the year 1896, on my way home from Arizona, I stopped at Fort Sill, to visit my Brother, who was then in command of the Indian troop of the 7th Cavalry, a troop made up of Kiowas and Comanches. One evening, an Indian sergeant (Kicking Bird, if I remember rightly), came to the house, where we were all sitting on the veranda. He was invited to sit down and tell us about the ghost dances and, for an hour, or more, he sat and told us this strange tale in perfect silence, his eloquent hands forming the words and phrases in "sign talk," which my Brother interpreted to the rest of us. A thrilling tale it was and held us all spellbound, no one so much as stirring while the sergeant told his story. The ideas that he described were mainly Christian, derived from the missionaries and school teachers, but adapted to Indian hopes and longings. The return of the buffalo, even more than the expulsion of the white man, was the desire of their hearts, a desire so interestingly displayed by White Bear, our Crow scout on the '84 trip, over the lone buffalo bull shot in the Big Horn basin.

I never learned who was to blame that, in South Dakota, the ghost dancing led to bloody fighting, or whether wise and sympathetic action could have averted the catastrophe. My friend, Dr. J. R. Kean, was a

witness of it and wrote me a most interesting letter; he regarded the insufficiency of food as the root of the trouble.

EXPEDITION OF 1891

I had long planned to visit an area in central Montana, from which Cope had described a few very interesting fossils, but no one else had collected there. The trip was to be a short one, hardly two months in all, and I again had the pleasure of Professor Magie's company. The success of the enterprise hung on a hair, so to speak, and was saved only by a remarkable chapter of accidents. I was even more than usually reluctant to go, because the International Geological Congress was to meet in Washington and by going West I should miss the chance of meeting many European friends. Nevertheless, as the newsboy said at the banquet, "the time to take pie is when pie's passin'." As matters turned out, I was to have my cake and eat it too, for, by an undesigned coincidence, I found most of my friends in the Yellowstone Park.

Our first objective was Helena, Mont., which seemed to be the best outfitting point and, in consequence, Magie and I went there ahead of the others, to assemble "transportation and equipment." We travelled by the Northern Pacific Railway through a region which I had last seen seven years before. I was struck by the great extension westward of the settled and cultivated area and the vast heaps of buffalo bones, which I had seen with sorrow and indignation in 1884, had completely disappeared; the fertilizer factories had absorbed them all. At Helena, we were advised to see Colonel Broadwater, the magnate of the place in those days. He received us very kindly and, when I had explained my plans, advised us to go on to Great Falls, about one hundred miles to the northeast on the Great Northern Railway. He gave us a letter to the Hon. Paris Gibson, of Great Falls, which was the means of saving the whole enterprise from destruction. Accordingly, I went on to Great Falls, while Magie remained in Helena, to direct the party, when it should arrive. "Professor" Mortson had been recommended to me as a guide, but I didn't want to take him, for he was entirely self-taught and an old soldier and I expected to find him one of the pestiferous cranks who had so often annoyed me. When, however, he called on me and I had a few minutes' talk with him, I changed my mind, for he understood the geology of the country thoroughly. Though an Englishman, he had been a sergeant of engineers in the U. S. Army and could make excellent sketch maps. He was a great find and to him the success

of the expedition was due. The two men who, in their very different ways, made our achievements possible were Mr. Paris Gibson and Sergeant Mortson.

I engaged, with very little difficulty, a fine lot of horses, especially a splendid team of four for the wagon, the best I ever had in all my Western peregrinations. I could not close the bargain, however, until the treasurer should arrive and let me know the state of our funds. When he did turn up, it once appeared that we were some $300 short. I then held a consultation with the party, as to whether they would stand by me, if I borrowed the necessary funds, explaining that the only alternative was to confess defeat and go home. Unanimously and without hesitation, they told me to go ahead and borrow the money. This I did at the local bank, Mr. Gibson endorsing my note, an extremely generous thing for him to do for the benefit of strangers. I may anticipate so far as to say that we had no difficulty in paying the debt, the sale of our horses more than covering it.

For the work of the expedition, I engaged three employees, each uncommonly good in his own line. Besides Sergeant Mortson, who was to be our guide and map maker, there were George, the teamster, and Charlie, the cook. I think the latter must have been in fear of the police and anxious to get out of the town, for he, though a thoroughly trained and competent hotel cook, volunteered to come with us for much less than his usual wages. Never have I had a camp cook who could compare with him, though Proctor, of the '82 trip, was a good second. The superlatively good meals he gave us made gluttons of us all and the quantity of supplies that we consumed that summer was quite incredible. To have three such competent and willing men was a wonderful stroke of good luck and made the work of camp and march mere child's play.

For some time we went wandering about in search of the fossil beds, of which the settlers knew nothing. We expected to see exposures somewhat like the familiar bad lands of Dakota and Wyoming and could find nothing of the sort. In view of the very short time at our disposal, it began to look as though we should have to go home without having found a place to begin work. This would have been another mortifying fiasco for me, but I was saved from it by Sergeant Mortson.

On a hot day, I borrowed a light wagon and harnessed our own wheelers to it, for a drive of fourteen miles to White Sulphur Springs. On the drive, I had a characteristic bit of experience. After driving some miles, I overtook that very rare bird in the Far West, a man

walking along the road. To my inquiry whether he was going into "the Springs," he made an affirmative grunt and, on asking further whether he didn't want a lift, I received no answer, but he climbed into the back of the wagon and uttered no sound for the remainder of the drive. When we reached the town, he jumped down and walked away without a word of thanks. Happening on an acquaintance at that moment, I asked him if my churlish passenger were not a sheep-herder and was told that he was. In my day, at least, the fearfully solitary lives that the herders led made them extremely taciturn, drove many of them insane and, in some, seemed to cause the atrophy of all human feeling.

So far as we could judge, we had about exhausted the possibilities of our two localities. "For their size, I never saw any beds so rich, but something is due to the fact that only one collector has been beforehand with us and it is eleven years since he was here, so that we have had almost virgin soil to work, a pleasure which I have never enjoyed before." On packing up our treasures, I found that we had nine large boxes full; these we took into White Sulphur Springs and turned them over to the large general store, the proprietors of which very kindly undertook to get them to the railroad for us. With the wagon thus lightened, we were able to travel relatively fast and got down to Livingston, on the Northern Pacific, in less than three days. Though the road we followed was a busy freighting route, inches deep in dust, we were able to find abundant grass for our horses. In one day we met ten great ox-teams, some of them of twelve yoke each, hauling three huge wagons coupled together. As there was then no railroad between the Northern Pacific and the Great Northern, there was an immense amount of work for the ox-teams to do.

From Livingston the party proceeded to the Yellowstone Park, where we wanted particularly to see the Giant Geyser erupt, the periods of which are so irregular that no time of activity can be predicted. We had many false alarms and, on one occasion, after running a mile through the woods, to no purpose, Charlie, the cook, declared his intention of ignoring the Giant thereafter, saying: "'Taint nothin' but hot water anyhow."

"Tuesday afternoon, the first division of the geological party arrived and, for the rest of the evening, I had a glorious time with my French, German and English friends, the very ones I wanted most to see being all in the first division, and I also met a lot of new ones. Every one was most desirous of hearing about my summer's work and gathered

around me like flies around honey, while I expounded maps and field notebooks. Of course, none of them recognized me and they were amused, when I told them who I was. Wednesday morning was spent in going about the geysers and it was great fun to hear the expressions of wonder and admiration in so many languages." The party had wonderful good fortune in seeing the Castle and the Giant erupt, for the latter of which we had been waiting for days. It was, indeed, a magnificent sight and one which well repaid all the patience it had cost.

A small detachment of cavalrymen, under the command of a corporal, formed the police in charge of the Upper Geyser Basin and did their work very efficiently. One of the most distinguished of the visiting German geologists, I think it was Rothpletz, unwittingly violated one of the Park regulations by breaking off a piece of geyserite from the cone of Old Faithful. The Corporal witnessed the crime and promptly put the offender under arrest, who submitted without a word of protest. It was fortunate that I was present, for I was able to persuade the Corporal, who was a very decent young fellow and knew me well, to liberate his prisoner. I assured him that I would take all the responsibility and make things right for him with Lieutenant Pitcher, who entirely approved of my action and there the matter ended. Diener, of Vienna, whose lisp and high, singsong voice seemed incompatible with his great scientific reputation, was an especially interesting figure. I still seem to hear him say, as the geologists' party was about to leave the Upper Basin: "Wir werden noch eine Thanthe haben Old Faithful wieder thu thehen."

After an evening in the hotel in the Lower Basin, where we again met our foreign colleagues, we camped at the same spot as before and early the next morning bade our friends of the 1st farewell and started for the Falls and Cañon. The road was unimproved and very hard on the horses, which, like ourselves, suffered from the mixture of rain and snow that fell all day long. The following evening, the Geological Congress began their homeward way and we saw nothing more of them. One of the Survey men, who had the excursion in charge, told me that the foreigners were greatly puzzled by what he called "the portable civilization" of the Park, the combination of comfort and crudity, electric lights and grizzly bears, etc., and he had ceased trying to explain it.

At the Mammoth Hot Springs the expedition began to disintegrate. Magie and I went to Livingston by train and thence went home by the Northern Pacific. The students rode their horses to Livingston and

took the train there, while Sergeant Mortson, George and Charlie returned to Great Falls, sold the horses and turned the proceeds over to Mr. Gibson, to pay off our note.

EXPEDITION OF 1893

When Osborn went to New York and became curator of vertebrate palaeontology in the American Museum of Natural History, he began to build up the department by systematic collecting and has, by that method, made it incomparably the largest and finest in the world. The first season's work by Dr. J. L. Wortman, who had collected several years for Cope, and O. A. Peterson, who has long been at the Carnegie Museum in Pittsburgh, was in the White River bad lands of South Dakota, where I had spent the summers of 1882 and 1890. The magnificent results, far beyond anything that I had been able to accomplish, filled me with speechless envy and jealousy; this material threw ours completely into the shade.

The following year, however, my feelings of envy were much mitigated, for Mr. J. B. Hatcher accepted the position of curator of vertebrate palaeontology at Princeton, thus beginning a new era in the history of our museum, for Hatcher, who had been many years with Marsh, had a veritable genius for collecting. Several of my generous friends contributed to the payment of his salary, but the College soon assumed it. President Patton, in the kindest manner, said that he thought they owed me that much, thus relieving me of a burdensome undertaking. For his first season, I asked Hatcher to try the South Dakota bad lands once more, being fired by the results which Wortman and Peterson had gained for the American Museum. It was necessary to find some way of meeting his field expenses, for which I had no funds. I, therefore, got up another expedition, which, like its predecessors, was to spend the summer in the field and, in addition, the young men generously made their contributions large enough to finance Hatcher and enable him to begin work as soon as the weather permitted.

In the middle of June, I followed Hatcher, stopping for a few hours at Chicago for a preliminary visit to the Columbian Exposition. I made no attempt to see anything but exteriors, taking the tour of the lagoons in an electric launch. Then continuing my way, I arrived at Fort Robinson, Neb., on June 17, where I was the guest of Captain Day. My object in visiting Robinson was to obtain supplies and tentage for the party and have them shipped to Hermosa, on the Black Hills branch, where the expedition was to assemble and Hatcher to meet us

with horses, wagons, camp cook and all the "outfit" complete. Despite all the changes of three years, I found many old friends who gave me a cordial welcome.

It would be vain repetition to describe our start from the railroad at Hermosa. On June 22 we had forded the Cheyenne River and made camp in Indian Draw, draw being the local name for a dry watercourse. I was not at all satisfied with the camp-site, for I had observed in the cottonwood trees around us masses of driftwood, caught in the branches and ten feet, or more, above the ground. The obvious meaning of the driftwood was that, at any time, a heavy rain in the hills might send a flood down the draw and wash us out. I had had one such experience, in very mild form, on the Gray Bull, in 1884, and did not desire another. So I ordered the camp moved to higher ground, a couple of hundred yards away. The inexperienced students thought the idea absurd and grumbled much over the unnecessary labour of shifting camp for such fantastic reasons, but, before we left the new camp, I had the satisfaction of seeing the water running, swift and deep, over the old camp-site.

After a few days, Hatcher, who had been away on an exploring trip, returned with news of phenomenal success. The next morning a small party moved over to the new finds, which, unfortunately, were a considerable distance from water. Hatcher had found three skeletons and nineteen skulls in a small area of the upper bad land sandstones and he continued to find new things for the remainder of my stay in camp. On August 3 I wrote: "Monday, Hatcher and I spent up on the buttes, getting up some fine things he lately found and in the more difficult task of getting the heavy bundles down the fearfully steep hill. It would make your hair stand on end, to see the terrible places where Hatcher will take a heavily loaded horse; places where you would not imagine it possible for a horse to go at all."

The results of this expedition were of great value and importance and incomparably greater in amount than we had ever had before. It was the difference between professional and amateur collecting. As there seemed to be no good reason for me to remain longer in the field, I put the party under Hatcher's charge and returned home, with a longer visit to the Chicago Exposition. That was the last of my collecting trips; I was again in the field of Arizona in 1896 and Nebraska in 1897, but those excursions were for a different purpose. The work of collecting I turned joyfully over to the most competent hands of

Hatcher, who adopted a new system, which, with some advantages, had one great drawback.

He arranged with the students who desired to make a Western trip, to contribute nearly enough money for him to take the field in early spring and then, when the party came out, he took charge of it and guided the travellers through the country which they wished to see, but there was no pretense of doing any work. I had to raise a moderate sum to supplement the contributions made by the students and, after writing to one of the Trustees for a subscription, I received the reply that he would give nothing to take the students off on junketing trips. When I explained to him the purpose for which I was raising the money, he immediately sent me a handsome sum. That opprobrious phrase, "junketing trips," was widely used for those excursions, I even saw it in the newspapers, and it did us a lot of harm. On the other hand, Hatcher's plan had two great advantages; it enabled him to do more work and more effective work and it created a warm attachment between his students and himself. In consequence of this attachment, they made it possible for him to realise his great ambition of going to Patagonia in 1896. Before he started on this great undertaking, he collected for us, most successfully, in the Uinta, White River, Loup Fork and Sheridan formations of Utah, Nebraska and South Dakota.

My own feelings toward the expeditions in which I took part were of very mixed character. While I greatly disliked the dirt and discomfort of camp life and the long separations from my family, the work of discovering new fossils had an inexhaustible fascination and there was about the whole undertaking a joyousness that will be hard to recapture under the changed conditions of today. The time of my activity covered the twenty years from 1877 to 1897, when the Far West was open country, very sparsely settled. For months, the collector's home was in his tent and his saddle, "wood, water and grass" his only requisites for happiness. The summer climate of the regions where we worked was, for the most part, delightful, though the heat was sometimes oppressive, and the health of all the successive parties was wonderfully good. Of all the students who were with Hatcher and myself in the West, I do not know of one who does not look back upon his trip with unmixed pleasure, as one of the memorable experiences of his life.

For many years past the Western work has been in the hands of my colleague and former pupil, Dr. W. J. Sinclair, who has had brilliant

success as a collector and has raised and established the "W. B. Scott Fund" to ensure the perpetuation of the work. Since Dr. Sinclair's lamentably early death in 1935, his work, in classroom, museum and field has been carried on by his favourite pupil, Professor Glenn L. Jepsen, who has administered the "Scott Fund."

CHAPTER SEVENTEEN

THIRD YEAR IN THE FACULTY

TO return to the story of my normal life at home, I got back from the expedition of 1882 to learn the calamitous news that my dear friend and teacher, Balfour, had been killed in the Alps, thus justifying the fears that I had had on his account and which led me to beseech him to give up such dangerous excursions. His death was a great loss to science and his memory has been cherished by his friends and his family to the present time.

In London in 1888, I attended a soirée at the Royal Society's rooms where the Rt. Hon. Arthur Balfour was also present. He was then the Chief Secretary for Ireland in the Government of his uncle, Lord Salisbury. Learning that one of his brother Frank's pupils was in the room, he asked to have me introduced and then questioned me eagerly about every smallest detail that I could tell him of his brother.

My future Mother-in-law, Mrs. Post, had arranged to take her two daughters and four other girls, cousins and friends, to Heidelberg for a year, to live in the house on the Neckar in which my Mother and I had been so happy.

The fall term was an unexpectedly busy time for me, for the illness and death of Professor Atwater made a gap in the schedule of the Junior class, which I was called upon to fill, almost at a moment's notice. I was no longer enslaved by having to mark absences in chapel, but there was enough extra work to make up for that relief. I could allow myself very little time for relaxations and could do almost nothing in the line of research. At first, I was inclined to believe that, owing to climatic or similar factors, I could accomplish much less original work in this country than in Europe. The summer vacation of 1883, which I spent in Princeton, taught me that the difficulty did not lie in the climate, but in the constant interruptions of term time. Any climate in which one is not incapacitated by bodily discomfort, is favourable to research.

A great nuisance of those days was caused by the long and frequent meetings of the Faculty, which, for lack of efficient organisation, were needlessly burdensome. When, on a previous page, I said that, in my career as a member of the Faculty, I was far from feeling assured that I had not done more harm than good, I had particularly in mind the problems of athletics and of the clubs. I can see now that often I espoused the wrong side of a question and that the conservatives, toward whom I had slightly contemptuous feelings, were often more nearly right. This is not because I, in my turn, have grown old and reactionary, but is an expression of an opinion which is held by nearly all who are in a position to judge. The overshadowing importance which intercollegiate athletics have gained is a great anomaly and misfortune. I witnessed every stage in the growth of that importance and, in my small way, helped it along. I fully appreciate the great good that the organised sports have done in our college life and would not restore pre-athletic conditions, even if I could.

When I first attended Faculty meetings, in January 1881, there was no committee on athletics and shortly after that date (I don't remember just when) a "Committee on Outdoor Sports" was appointed, with Professor Sloane as chairman. I was made a member of this committee and remained on it till 1912, when I asked to be excused from committee work. The only athletic fixtures of that earlier time were the football games with Yale and Harvard, the former played on the Polo Grounds in New York, the latter alternately at Princeton and Cambridge. Public interest in these games was continually stimulated by the newspapers, and the alumni attached an importance to them which increased steadily until they unblushingly rated athletic success above scholarly achievement, which seems an astonishing perversion. The taproot of most of the evils which afflict intercollegiate athletics in America is newspaper notoriety and I am convinced that, if it were possible to make and enforce a law restricting the public report of any game or race to a single line of small type, which should give only the score, without mentioning the names of contestants, these evils would speedily disappear.

That the undergraduate should put so false a value on athletic victories is not surprising, when one considers what he reads in the papers, what he hears from his family and friends, the alumni and the coaches. The motto: "Win; fairly, if you can, but win!," has led to every kind of lying and cheating, professionalism more or less successfully concealed, the holding out of illegitimate inducements to promising schoolboys; in short, to the abuses which have scandalised the world. In not

a few instances professors and governing bodies have been corrupted by the overweening desire to win at all costs, and winked at, or even actively promoted, these questionable practices. One professor in a university with no great reputation, save in athletics, frankly told me that, in allotting scholarships, he gave them to the best football players. When I asked him if that were not tantamount to professionalism, he replied: "I don't care whether it is or not; I'm going to build up the team."

An abuse that was very hard to reach was the practice of rich alumni in putting a boy through college and picking athletes as subjects of their liberality. I know of one graduate of a small college who hired and paid for almost the entire football squad and he got his money's worth, for that team won all its games. However, when our committee was first appointed, these evils had not shown themselves and they crept in upon us before we had awakened to the possibility of such practices. For a time, the wool was very successfully pulled over our eyes and we indignantly denied accusations which afterwards turned out to be true, much to our mortification.

There were two features in student life at Princeton which lent themselves marvellously to athletic abuses, so much so that some of our rivals refused to believe that they had not been instituted to facilitate the evil practices. In truth, however, both of these features long antedated organised athletics. The first of these was the system of eating clubs, which were temporary affairs, changing every year, though sometimes a club lasted through a student generation of four years. An undergraduate would make a contract with a boarding house keeper to form a club of so many members, who were each to pay so much a week. The usual weekly price of board was from $3.00 to $3.50; a rate of $4.00 was luxury and one of $5.00 princely extravagance. The manager who formed and recruited the club received his board in return for his services and boarding house keepers preferred athletes as managers, for they were the best recruiting agents.

The second feature, alluded to above, was that of "partial course" students. Men who wished to spend a year or more at college, without attempting to take a degree, were put in this class. Such men, afterwards called "Special Students, not Candidates for a Degree," were admitted without entrance examinations; they simply paid some small fees and were enrolled without further ceremony. It can readily be seen how easy it was to smuggle in "ringers" and "rounders" and other athletic tramps, and how men who had already graduated could be

brought back for a football or a baseball season in the guise of special students. Sometimes they were even surreptitiously paid for their services.

When the committee began its work, athletics were still in a state of comparative innocence and we followed the theory that it would serve for the training of the undergraduates in management and business to leave everything, so far as possible, in their hands and exercise the minimum of interference on the part of the Faculty. Our functions were only two: first, to see that the schedule of games and contests should be restricted to a reasonable number, especially those which involved absence from Princeton in term time, and secondly, to make sure that the members of the teams should be bona fide students. With the special student rules being what they were, this second function had little restraining force until the committee recommended, and the Faculty adopted, a regulation that special students should not be eligible to play in intercollegiate games until after a year's residence at Princeton. This put a stop to most of the clandestine hiring of players.

The various abuses to which I have referred were, by no means, peculiar to Princeton. In greater or less degree, all the colleges suffered from them. Some institutions, corrupted by the great advertising value of athletic success, made no serious attempt to correct the evils and had no effective eligibility rules. It became necessary to withdraw authority step by step from the students and, especially, to appoint graduate treasurers to handle the great sums of money that poured in. No single institution felt strong enough to enforce the necessary reforms and, in consequence, various intercollegiate bodies were founded, in order to deal with the evils more effectively. These have accomplished much and in Yale, Harvard and Princeton the abuses have been pretty well eradicated, though, as the report of the Carnegie Institution shows, they are still lamentably prevalent. Most encouraging of all are the signs that the temperature of the undergraduate body is beginning to decline from its feverish state. When our students take the sensible view regarding athletics which prevails in the English universities, the end of our troubles will be in sight.

As I no longer had to "spot in chapel," I was freer to leave Princeton and paid much more frequent visits to New York than in the preceding years. When there, I usually took luncheon with the "Ginmill Club," a group of friends who were in the habit of lunching together, though there was no formal organisation. Frank Speir and Moses Taylor Pyne, whom we always called *Ingens,* Bob Annin, Billy Forbes (Yale '77)

whose sister married Speir, and J. B. Pine (Columbia '77) were the regular standbys, while Murray Butler, for many years past President of Columbia, was a frequent visitor. Pyne was a classmate of Speir and myself and though we had had little to do with each other in college, he became, after my return from Germany, one of my closest friends. He was the most generous of men and his liberality made possible much of my work, to say nothing, as he would have wished me to say, of his personal kindness to myself. We were on opposite sides of the controversies in the Wilson administration and Frank Speir stood with Pyne, but though those controversies aroused great bitterness and sundered many old friendships, I was so happy as to keep my friends with no loss of mutual affection.

The spring and summer of 1883 passed with little of outstanding interest, except the publication of the first volume of McMaster's *History of the American People*. I do not know whether "Mac" took any of his friends into his confidence about this immense undertaking which immediately brought him great distinction. Very few can have known of it, for the work took all Princeton by surprise. Dr. McCosh remarked at a library meeting that "the sun had risen without a dawn." Sloane tried hard to induce the Trustees to establish a chair of American history for the new luminary, but encountered that density and obtuseness which sometimes afflicts governing bodies. McMaster had been teaching engineering; why couldn't he stick to that? *Ne sutor ultra crepidam*; they remembered that much Latin.

I spent nearly the entire summer at Princeton, going on with the embryological work which I had been doing at Heidelberg and was favoured with the moderate weather of that exceptional season. After a very hot week at the beginning of July, we had no hot weather at all. Throughout the whole year of 1883, I had a wood fire in my study in every month. I had a number of brief, but very enjoyable outings in the course of that summer, which kept me from getting too much "moss on my back." I went on several short yachting trips with friends from South Amboy, and I love a sailing yacht as much as I hate a liner. Another interesting excursion was to Wood's Hole, which, in after years, was to become so very familiar to me. Professor S. F. Baird, then not only the Secretary of the Smithsonian Institution, but also the head of the U. S. Fish Commission, invited Libbey and me to visit him at his summer quarters at Wood's Hole and advise as to his plans for a zoölogical laboratory and fishery station there.

Of course, we were glad to go and were greatly interested in the Commissioner's plans, which included an aquarium for the public. When I inquired whether a public aquarium were not an unnecessary expense in so small a place and so out of the way as Wood's Hole, Dr. Baird answered me in an illuminating fashion. Some day, he said, a boatload of excursionists would land there, a congressman or two among them, and, when they found there was nothing for the public to see, those congressmen would make things unpleasant at the next session and might succeed in getting the appropriations cut down. This was my first meeting with an administrative official's fear of Congress and the power of the purse, an experience which has often been repeated since. The U. S. S. *Albatross,* the ocean-going steamer of the Fish Commission, which was then quite new, was in harbour and we were welcomed aboard to make a thorough inspection of her. She has since become famous for her deep-sea work in the Gulf, the Caribbean and the Pacific.

Captain Sigsbee, of the Navy, was then in command of the *Albatross* and had already gained distinction for his very valuable improvements in deep-sea sounding apparatus. He became very much better known to the public at large as the commander of the ill-fated *Maine*, when she was blown up in Havana harbour.

In the autumn of that year Matthew Arnold came to Princeton and delivered his celebrated lecture on *Numbers*. He took a train from New York, which was not scheduled to stop at the Junction and, when his agent succeeded in getting the train stopped, there was no train on the branch line to take them up, and so the two of them drove up the hill to Princeton in a farm wagon, their long legs dangling down behind. Dr. McCosh, who did not like Arnold, used to chuckle with great enjoyment over this very undignified entrance. The substance of the lecture was very fine, but the manner of its delivery was ludicrous, the usual English wooden stiffness being far outdone. Dr. McCosh had a reception for Mr. Arnold after the lecture, but the guest of honour was almost as ligneous in the drawing room as he had been on the platform. Sloane met him on the train the next morning and expressed the pleasure which the lecture had given him, "Ah! yes," said Mr. Arnold, "but what an audience!," an ambiguous phrase which Sloane took to be complimentary.

After one of the Board meetings, Dr. McCosh informed me that my salary had been increased by a substantial amount (to $2,500 I think it was) and added: "And now you can get married." I took his advice

speedily; Miss Post returned from Europe and we were married on December 15. One does not like to speak publicly of his family life, but I must give testimony that no man ever had a nobler helpmeet. Had she been a selfish or small-minded woman, she might have sadly hampered or even put a stop to my work, but she has ever been a tower of strength and the best of comrades. Of what she has been to her children and of their devotion to her, I must let them speak.

CHAPTER EIGHTEEN

MARRIED LIFE

ON our wedding journey we went first to Boston, where we stayed three days. It was bitterly cold and, after our arrival, there was a tremendous fall of snow, through which we waded to the theatre and saw Irving and Terry in *Charles I,* a foolish play, but the acting was wonderful. From Boston we went to Montreal, Toronto, Niagara, Buffalo and Pittsburgh, spending Sunday with my oldest brother and reaching Princeton early on Christmas morning. For all that journey, nearly seven hundred miles in east-west distance, we never changed our watches. It was the first considerable trip that either of us had made under the newly adopted system of standard time; before that, every town had its own "sun time" and railroad timetables were in the direst confusion. Those of the Pennsylvania, for instance, bore a caption to this effect: "The time here given is that of Philadelphia, which is five minutes slower than that of New York."

The new plan, like all innovations, encountered much opposition and some cities tried to have both "railroad time" and "local time." There were some well founded objections, especially in certain large cities which, like Buffalo and Pittsburgh, were on the borders of the time-belts and, in them, serious inconvenience was actually caused by the new system. A few "rectifications of frontier," however, removed most of the inconvenient features and "standard time" has become so much a matter of course, that many people believe the system to be of immemorial antiquity and some go so far as to attribute a divine origin to it. Among the many objections which were raised to the plan of daylight saving, which we adopted from England and France on entering the World War, I saw several which denounced it as blasphemous, as a wanton and wicked departure from "God's own sun time," conveniently ignoring the fact that this divinely appointed system was not introduced until 1883.

For nearly five years, we lived in Morven, until my Mother could carry out her long-cherished plan of building a home of her own. We had hardly been settled, when our dear friend, Dr. Guyot, died (February 1884). Not only did I feel very grateful to Dr. Guyot for his unwearying kindness to me, but I had a strong personal affection for him, to say nothing of my admiration of him as a great man of science. His was a most lovable character and he had a sly sense of humour, which his quaint English made the more delightful. He told us a story, for example, of the days when he had been professor of history at Neufchatel and was examining a student, orally, on the period of Louis XIV; the candidate was very glib and discoursed so fluently of "le grand monarque" that Dr. Guyot suspected him of mere cramming. "So I did say to him, 'Stop a leetle, stop a leetle, was all zis before or after ze Flood,' and he could not tell me." Wishing to evade the expression of an opinion as to a certain book, he said: "I have no time, sometimes, to read a great many things."

As told in a previous chapter, I made an unsuccessful collecting trip to the Big Horn Basin, in Wyoming, while my Wife spent the summer with her mother and grandmother, partly in Connecticut, partly on Cape Cod. When I returned home and found her awaiting me, I was just in time to attend the meeting of the American Association for the Advancement of Science in Philadelphia and the British Association, which had been meeting in Montreal, came down and held joint sessions with us, making the occasion a very memorable and delightful one. As the weather was hot and Philadelphia very crowded, Osborn and I came back to Princeton nearly every night. We had the pleasure of meeting many of our English friends again and Osborn brought them home with him in turn. Sir Oliver Lodge was disgusted with Philadelphia and declared that it wasn't half the place that Montreal was.

At one of the meetings of the Zoölogical Section, great excitement was aroused by a cable message from Australia, sent by Caldwell, Balfour student in Cambridge. This announced that the Duck-billed Mole (*Ornithorhynchus*) was oviparous. That a true mammal, warm-blooded, hair-covered and milk-giving, should reproduce by means of eggs, in the ordinary sense of the word, was very wonderful. Caldwell's observation turned out to be a rediscovery of what had originally been reported by a French naturalist some forty years before. Little notice had been taken of this startling discovery at the time and it had been completely forgotten. The general acceptance of the theory of Evolution

made the existence of egg-laying mammals seem far more interesting and significant than it had in 1844.

I returned home to find the Blaine-Cleveland contest for the Presidency in full blast and the mud-slinging in which both sides indulged was sickening. From the first, I felt that it would be impossible for me to vote for Blaine and, with a great wrench, I broke away from the Republican party in which I had grown up and became one of that hated band of "Mugwumps," which the Republican organs so venomously berated. To my Mother and Uncle it was a great grief to see me turn renegade; they believed that Democratic success meant the loss of everything that had been gained by the Civil War and that I was a traitor to "these honoured dead." Even after the election, there was a long period of suspense and uncertainty, in which the waves of political passion ran very high, because the vote of New York State, on which the whole election turned, was so very close.

I remember three such periods of intense anger and excitement: the impeachment of President Andrew Johnson, the disputed election of President Hayes in 1876, and the long uncertainty over the result in 1884. So long as matters were uncertain, the excitement continued and I heard many threats of civil war, but when the decision was made by the properly constituted authorities, the excitement died away and every one accepted the result.

On December 16 our first child, Charles Hodge II, was born and this opened a new chapter in life for us. With the birth of his first child a man enters a new world, the existence of which had been unknown, or but imperfectly divined. The new interests, understandings and sympathies cannot well be described, or even enumerated, but nothing in life is more real. [Alas! Alas! this dearly loved child was destined to die before us: March 21, 1926.]

The first half of 1885, closing the academic year, was marked by a very interesting palaeontological discovery. The Rev. A. A. Haines, Dr. Guyot's brother-in-law who lived in northern New Jersey, heard that a farmer living at Mt. Hermon, near Blairstown, had excavated some very curious bones from the shell-marl underneath a peat-bog. Being in the neighbourhood, Mr. Haines went to see the fossils, though he made no pretense of understanding bones, and, on the chance of their being valuable, offered fifty dollars for them. The owner, who had tried in vain to sell them, was glad to accept the offer and ship the skeleton to Princeton. As soon as it was unpacked, I saw that,

like Mr. Brown in Bret Harte's immortal poem, I had happened on "an animile that was extremely rare."

The skeleton, as speedily appeared, was remarkably complete, the finder having made an uncommonly good job of getting it out. Very few bones were missing and nearly every one that had been lost could readily be restored from its fellow of the opposite side. The creature was evidently related to the Moose (*Alces*), but with certain significant resemblances to the true Deer (*Cervus*), while the antlers were unlike those found in any other member of the family. I had to make a new genus for it and therefore called it *Cervalces,* as indicative of its intermediate position. I published a brief account of the discovery in *Science* and an elaborate study in the *Proceedings* of the Academy in Philadelphia. The mounted skeleton remains unique; it has no fellow.

Shortly after this beautiful specimen had been put on exhibition in the museum, Mr. E. E. Howell, one of the partners in Ward's Natural Science establishment at Rochester, N. Y., who was visiting Princeton, stood looking at our new treasure. Suddenly, he amazed and disconcerted me by bursting into a roar of laughter and, somewhat piqued by this frivolous attitude toward our great discovery, I asked him what he saw in it that was so amusing. He replied: "The joke is on us. The man who found that, wrote and offered it to us, but we were so tired of wild-goose chases after the bones of old mules and cows that we paid no attention to him, and that's where we made a big mistake."

After settling my small family at East Rockaway, Long Island, I started West with George Butler and Harry Paul on the expedition of 1885, which had such gratifying results. In the autumn began my career as a popular lecturer, my first venture in that line, at Fort Robinson, not having been followed up. I began with the Young Men's Institute, in the Bowery of New York, an admirable place, in which Cleveland Dodge was particularly interested, and I kept this up for five or six years. I also took part in the University Extension work in Yonkers, Tarrytown and Trenton. From Trenton, I came home every night and had a long wait in the station for my train, for the electric lines had not been built and motor cars were not yet in existence. I thought the railroad company very remiss in failing to keep an interpreter in the Trenton station. Almost every night I was called upon to help some bewildered German-speaking immigrant out of trouble. In every case, it required but a brief explanation to set matters straight, as lack of funds was not the trouble. In 1891 I became a member of the faculty of the Wagner Free Institute of Science, in Philadelphia,

and continued that work, which I found extremely interesting, for twenty years.

Osborn and I formed an ambitious plan to write a comprehensive work on *American Fossil Mammals,* which the Macmillan Company had agreed to publish and had even gone so far as to advertise it as "in preparation." We cherished this scheme hopefully for twenty years and did a lot of work on it, but had to abandon it eventually. To perform this great task intelligently, we found it necessary to acquaint ourselves thoroughly with the fossil mammals of Europe. For this purpose and also to fit himself still better for his courses in comparative anatomy, Osborn spent the year 1886 in Europe, chiefly at Munich. After he had taken over the department of Vertebrate Palaeontology in the American Museum and had begun the great series of collecting expeditions for which that Museum is famous, new material came in such a flood that we were fairly swamped in it. Our chapters had to be rewritten many times and, even then, were antiquated before they were finished. We reluctantly came to the conclusion that the great work of synthesis would have to be left to younger men.

The story of my quarrel with Professor Marsh is a long and complicated tale, with many ramifications. This is no place to narrate it all at length, though I possess all the necessary letters and documents and some day I hope to write out the story in full, but whether it will ever be published, is doubtful. The quarrel began in a concealed sort of way, when, under cover of the Yale-Princeton football game of 1885, I went to New Haven to attend a meeting of Marsh's assistants, who were determined to take active steps toward unmasking the great palaeontologist, but this meeting came to nothing; the great explosion was deferred for four years. Of this I shall speak briefly in its proper order.

All my spare time was devoted to our *magnum opus,* to which a necessary preliminary was the compilation of a complete bibliography of our fossil mammals and, for this purpose, I did a great deal of work in the fine library of the Academy of Natural Sciences in Philadelphia. In compiling the bibliography I found great entertainment in going through the voluminous literature on the American Mastodon, much of which was incredibly absurd. In particular, a German explorer found a remarkably complete Mastodon skeleton near the Missouri River and took it to London, where he exhibited it as the "Leviathan of Holy Writ." The British Museum bought and remounted it and it is displayed in South Kensington still. So amusing did I find much of this

voluminous mass of ignorance and half-baked learning that I wrote an article called *"American Elephant Myths,"* which was published in *Scribner's Magazine* for 1887.

Nearly forty years later, my burrowing through all this dusty rubbish had a curious sequel. In 1924, I received a letter from my colleague, Professor Shipman, written from Bad Neuheim in Germany, and asking, on behalf of an English lady whom he met at Nauheim, whether I could give him any information concerning the skeleton of the Leviathan, "from the head waters of the Missouri River," which was exhibited in London in 1839 or '40. This English lady was engaged in editing the diary of Fanny Burney, the younger (not Mme. d'Arblay), who had set down her visit to the exhibition of Leviathan. The editor was anxious to learn something of the nature of the fabulous monster. Shipman wrote me on the off chance of my being able to supply the needed information and, in so doing, applied to one of the two or three people, alive, who could give him an immediate answer. The men to whom all that was a twice-told tale, such as Sir Richard Owen in England, Dr. Leidy and Professor Dana in this country, were all dead and few of the living would have any occasion to dig into that musty literature, which is much more curious than important. Truly, coincidence has a long arm.

In the summer of 1886, again taking my Wife and baby to East Rockaway, I started West on my fifth expedition. The party, so long as I was with it, remained in the Bridger country, finishing the work begun by the '85 party. After a few weeks, Speir came out to take my place in the manner previously described, and I returned to Long Island in time to welcome the arrival of our first daughter, Adeline Mitchill.

In December, something, I no longer remember what, took me to Cambridge and, when going through the Harvard Museum, I asked if I might not see the White River fossils which were collected in 1882 by S. S. Garman. We heard of him frequently that summer at the Pine Ridge Agency, but never happened to meet him. The collection, which had been merely cleaned and stored in trays, was immediately put at my disposal, in the kindest manner. I spent some hours in going through it and was delighted, for I found a lot of fine things and several entirely new unknown types. My attention was especially attracted by a large skull, of a kind that I had never seen before, which was lying in an open tray. It turned out to be a new kind of aquatic rhinoceros, which Osborn and I named *Metamynodon* and was, of itself, enough to give distinction to the collection.

My experience with Mr. Alexander Agassiz, with regard to this collection, was extremely interesting. One of his assistants told me that Mr. Agassiz was expecting a request from me to be allowed to take the collection away with me and had determined to refuse, but that the line of attack which I opened took him completely by surprise and led to immediate surrender. I said: "Mr. Agassiz, that's a beautiful collection that Garman made in the White River; it contains a lot of important things that ought to be figured and described and it's a great pity to let it lie about unutilized. Osborn and I will be delighted to prepare a full report upon it, if you will entrust it to us." He had not believed that the collection was important and was very much pleased by my opinion of it. He offered to publish promptly anything that we might get ready.

The year 1887 was filled with interesting work. We spent the summer in Princeton and no expedition was undertaken. Of this relief I was glad and not only on personal grounds, for I did not wish to gather more fossils until those which we already had, those gathered by the parties of '85 and '86 and the Garman collection from Harvard, should have been prepared and published. There was ample work to do and I was quite willing to wait before striking out into new fields.

The great event of the year was the building of my Mother's house in Bayard Lane, which was destined to be our home for thirty years; it was begun in the autumn of 1887 and finished the following spring. The architect was Page Brown, who designed the central part of the art museum and Whig and Clio Halls. Shortly afterward, he moved to San Francisco and was there killed by a fall from his horse.

In the interests of the joint work upon which Osborn and I were engaged, it became necessary for me to study the great collections of fossil mammals in Europe, especially the museums of London, Paris and Munich. Accordingly, I made arrangements for a leave of absence from April to October 1888. Mrs. Post, my Wife's mother, and two young cousins, the Misses Conover and Stockton, we were glad to have with us. My Wife and children were to go to Heidelberg and live with our dear friends, the Fräuleins Lang, while the rest of us were off on our travels. We concluded our preparations long in advance, the sailing date to be April 14. Before that long-expected day, however, there were some highly important occurrences.

Dr. McCosh had resigned the presidency, his resignation to take effect at the Commencement of 1888. The question of his successor was, of course, of the liveliest interest to all Princetonians and, immediately, there arose two parties among the Trustees and alumni. One party, to which

I belonged in whole-souled fashion, was anxious to have Sloane elected, the other party was as enthusiastic for Dr. Patton. The choice, to my lasting regret, fell upon Dr. Patton; for a short time I was reconciled, only to have my chagrin revived in stronger measure. Personally, I was always very fond of Dr. Patton, who was a most lovable man, and admired him exceedingly as the most brilliant man, except perhaps Balfour, whom I had ever known, but he was not a good executive and his defects of temperament went far to neutralise his extraordinary powers of mind.

Most of the New York alumni were bitterly opposed to the election of Dr. Patton on the ground that he was "a narrow-minded bigot," for he had conducted the prosecution in the Swing heresy trial in Chicago, before he came to Princeton; that he was a British subject, and that he was many other things which I do not recall. At the dinner given him in New York, on March 15, 1888, shortly after the election was announced, he temporarily conquered the opposition by a truly great speech, the greatest I ever heard from any man. In the most skilful manner and without appearing to do so, he took up and convincingly answered, one by one, the objections that had been made to him by the alumni. I remember only one passage sufficiently well to quote, but that illustrates his method throughout: "When I think of Witherspoon and McCosh, I am compelled to believe that there is more joy among the alumni over the one president that is naturalised than over the ninety and nine that need no naturalisation."

When Dr. Patton began his speech that night, the atmosphere was so palpably one of cold hostility that one could not but feel it, and I trembled with the fear of a great fiasco. My fears were quite misplaced, for when the speaker finished, his enemies were standing on the tables, waving their napkins and yelling in a frenzy of enthusiasm. Such a personal triumph I never witnessed before or since. He had converted his opponents and began his administration with the heartiest good wishes of all parties. That the conversion was short-lived, was most unfortunate and yet not to be wondered at, for the slackness of the new President's ways very soon made themselves felt.

To reach that Princeton dinner in New York, on *Thursday,* March 15, Osborn and I spent six or seven hours on the way, travelling on the first train by the Pennsylvania Railroad that reached New York that *week.* The cause of this unique stoppage of communications was the tremendous storm, ever since known as "the Great Blizzard of '88," which began on Sunday night, March 11. Saturday, as I clearly remember, was a

balmy, cloudless spring day and Sunday was mild, but rainy, and the official forecast for Monday was "colder, northwesterly winds." Never were poor mortals more bewildered than we, when we got up on Monday morning, to find ourselves back in midwinter, a furious gale driving the snow in horizontal lines. We were in the predicament of the inhabitant of Laramie, Wyo., who, when asked whether there was very heavy snowfall there, replied: "Well, no; not much falls, but a terrible lot passes through."

Already, the drifts were so deep, that the milk-wagons could scarcely make their rounds and only with extraneous help. So tremendous was the force of the wind, that it took three men to get a fork-full of hay across the stable yard, for the horses had to be fed. For three days the blizzard continued, with very gradually diminishing violence, and the enormous drifts were such as have never been seen here since, and some of them, I was told, did not disappear till June. Though the main line was blocked, the direction of the wind kept the branch open and several train loads of passengers, who were stalled near the Junction, were brought up to Princeton and quartered, where room could be found for them. For four days we were cut off from the outside world, getting no mails, or newspapers. We found the snow much deeper in New York than in Princeton. Indeed, New York seemed to be the point of greatest snowfall in a singularly localised storm, which extended over the coastal strip from Connecticut to Baltimore and westward to Harrisburg.

Notwithstanding the blizzard, the spring of that year was unusually early and, when we sailed on April 14, vegetation was farther advanced than we found it in England ten days later. The day before sailing I called at the office of R. W. Forbes and Son, to bid farewell to my friend, Billy Forbes. In his room were a lot of tables, covered with brick-like blocks of crystalline substance, ranging in colour from dark brown to nearly white. My curiosity aroused, I said: "Billy, what is this stuff?" He replied: "It's glucose, they're making it out of corn now." "What do you do with it?" "Oh! I send it all over the world; among other things, I ship fifty tons of it a week to the English brewers." I have often found that information, picked up in this random way came in very handily at some later time but, in this instance, the use followed speedily and in a rather absurd way, in London.

CHAPTER NINETEEN

EUROPE ONCE MORE

OUR steamer was the *City of Chester,* of the now defunct Inman Line, an old ship and none too luxurious, which I was to meet again in very different circumstances at the close of the Spanish War. We landed at Liverpool and took the usual "American tour"—Chester, Leamington, Oxford and their surroundings. Then followed a fortnight in London, when I took up again the work in the British Museum, which I had laid aside in 1879 on going to Cambridge. Sloane had spent the preceding winter in Paris at work upon his monumental *Life of Napoleon* and I found him ensconced in a house in London. He was in a state of perturbation, for he had not had a word or a line from Dr. Patton since the latter's election to the presidency. This silence Sloane interpreted as deliberate and meaning that his resignation would be acceptable. I, knowing our new President better, believed it to be merely an oversight and so I cabled Pyne to urge that Dr. Patton should write to Sloane. This, of course, I did without saying anything of it to any one and the result must have been favourable, though I never heard.

I was invited to dine at the Savile Club by that eminent zoölogist E. Ray Lankester, who was subsequently knighted and made Director of the British Museum of Natural History. Lankester was very unpopular among his British colleagues and some of his subordinates at the Museum fairly loathed him; the things they told me about him cannot be repeated here. On the other hand, I always liked him and he was uniformly kind and courteous to me. On the occasion at the Savile Club, we took the "house dinner" and sat at a long table with twenty-five or thirty other members, Lankester at one end of the table and I next to him. In connection with something which I have forgotten, the conversation turned on English beer, on which my host delivered a glowing eulogy. He declared that it was the finest and purest beer in the world, that nothing but malt and hops was ever put into it,

etc., etc. I let him go on until he had irrevocably committed himself and then I remarked: "Lankester, this is all very interesting, but, I must confess, it puzzles me. I have a friend in New York, who sends fifty tons of glucose a week to the English brewers; what do they do with it?" Very much to my astonishment, a shout of joy and laughter went up from all the diners, for I had not observed that the whole table was listening. Had I known that, I should not have played such a trick on my host.

While still in London, I received word from the authorities at home that Sloane and I were to represent Princeton at the eight hundredth anniversary of the University of Bologna in June. Our credentials were written in Latin by Dr. McCosh on a half sheet of note paper and appointed us to represent the "Collegium Princetoniense in Republica Neo-Caesarea"; this was making unreasonable demands upon the geographical knowledge of the Italians. How were they to know that that meant the State of New Jersey? With some difficulty, I, at last, succeeded in hiring a cap and gown in London; they weren't quite the right thing, but served their purpose well enough.

At the end of May we went on to Heidelberg, where I left my Wife and children in the Untere Neckarstrasse and went on to Basel, as I wished to call on the eminent palaeontologist, Professor Rütimeyer, whom I had never met, though I had corresponded with him. I then had my first experience with "Baseler deitsch" and was completely bewildered by it. In hunting up Rütimeyer, I had frequently to ask my way from passers-by, who understood me perfectly well, but whose answers were incomprehensible to me. Eventually, however, I found my way to the "Anatomie," where I met a very cordial welcome from Rütimeyer and spent most of the day with him in very interesting and profitable fashion. It was amusing to hear the old man talk Hochdeutsch to me, then turn and use the local patois to his assistants.

The next morning, I was joined by Mrs. Post and the girls and we went on to Italy by the Gotthard route. Though we had some wonderful views, the coal-burning engines then in use made the passage of the tunnels a rather suffocating affair. Our first destination was Milan, where I had the surprise of finding in the museum an excellent collection of fossil mammals from Argentina and from Pikermi, in Greece. The director himself, Stopani, some sort of a clerical dignitary, conducted me very politely through the collection, conversing in German that was perfectly intelligible, but of extraordinary pronunciation. We next proceeded to Bologna, where I left the train, the ladies going on

to Florence. I was much too early for the celebration and was told at the Hotel Brun that I could have a room only until Sunday. As the festivities were to begin on Monday, this was rather disturbing news, especially as all the other good hotels told the same story.

The University authorities appeared to be in a state of hopeless confusion and they paid no attention to the delegates and made no arrangements for their entertainment. I had a personal letter to Capellini, the Rector, which I left at his office, together with my credentials; I got the landlord of the hotel to write him a letter, in Italian, in my name. As these various measures produced no result, I engaged a commissionaire and hunted the Rector up, or down. He seemed to be completely distracted and declared that he could do nothing for me; that every delegate would have to look out for himself. Saturday evening, James Russell Lowell turned up at the hotel and I was introduced to him. He was very indignant at the scant courtesy shown to the delegates, having been somewhat spoiled by the attentions which were paid him in London, when he was the American Minister there. To be so completely ignored was something of a novelty and a most distasteful one. Eugene Schuyler was so good as to let me have one of his rooms at the Hotel Pellegrino, thus enabling me to remain in Bologna. I still took my meals at the Hotel Brun, where there was a delightful lot of people, chiefly English and American, and some, like Lowell, Schuyler, Weir Mitchell, Fiske, the translator of Taine, and Professor Credner, of Leipsic, were celebrities.

Word leaked out that, beside the honorary M. D., which was to be conferred on Weir Mitchell, the representative American degree was to be given to a missionary in Rome. This man was said to be an intimate friend of the Minister of Public Instruction, who, in turn, was the brother of the Rector of the University of Bologna. Schuyler and other defenders of the Italians thought it very unreasonable to expect that the latter should know anything about America, or the Americans, but the English were very indignant about it. On Sunday evening, a lot of the English and American delegates held an indignation meeting in a café, to discuss their grievances. The Americans felt unable to do anything, but the Englishmen resolved to inform the authorities that, unless the degree were given to Mr. Lowell, the British delegates would leave, in a body. I do not know whether this ultimatum was actually presented, or not, but, in some way or other the desired change was made.

At that meeting I heard some gossip concerning the real significance of the celebration. According to this tale, Bologna was strongly republican and the Italian government was anxious to do something which should take the King and Queen to the place and cause a great demonstration of loyalty to the house of Savoy. Accordingly, they hit on the device of celebrating the eight hundredth anniversary of the founding of the university, though this famous institution never was founded, but "growed," like Topsy, out of a monastery. It was also said that, while its age was not exactly known, the university was much less than eight hundred years old, though that fictitious age would serve.

Every morning the authorities issued a bulletin, which contained a list of the delegates, so far arrived, with the institutions which they represented, universities, learned societies, etc., arranged in geographical order. The first copy sent to me contained matter for much mirth. South America (America Meridionale) had, at the head of its list, Universita de Buenos Aires, followed by Universita de Toronto! North America (America Settentrionale) was divided into Canada, Stati Uniti and "Republica Neo-Caesarea," my unlucky credentials having proved to be an insoluble problem. One of my English friends jeered at me, with the remark: "I had always supposed that New Jersey was one of the United States."

The show began on the afternoon of Monday, June 11, with a delightful symphony concert; the Bologna orchestra was said to be the best in Italy at that time. Then followed the unveiling of the statue of Victor Emanuel by the King, a very brilliant spectacle. In the evening was a grand torchlight procession, which was a complete revelation to my northern eyes, though the term "torchlight" was entirely inapplicable, for there were no torches. Instead, there were elaborate devices, such as the arms of Italy, of Bologna, of the University, etc., made up of small globes of coloured glass, each globe half full of olive oil, with a little floating wick in it. When these were lighted, they looked like great jewels, emeralds, sapphires, rubies and diamonds. The effect of a long line of these devices, some of which took six men to carry, apparently floating in the darkness, was indescribably beautiful, especially from the elevated position in which I watched it. I dined with a party of friends in an upstairs room of the Café Stelloni, on the great piazza opposite the palace; we were all enchanted with the spectacle, the like of which few of us had ever seen.

Next followed the "court ball," though as there was no dancing it was rather a reception by the King and Queen. It was a desperately hot

night and I was glad to secure a small dais in a window niche, which gave a little coolness, and there I stayed as long as the function lasted. My window was near where Queen Margarita stood, a most charming though not exactly beautiful woman. Beside her native Italian, I heard her speak English, German, French and Spanish to the various delegates, using all these languages with ease and fluency. She must have been very well coached, too, as to the personality of the more distinguished delegates, for she had a few gracious words of recognition for each of them. For example, to J. R. Lowell, she said: "Mr. Lowell, have you published anything since *Heart's Ease and Rue*?" which was his latest book. The King I saw only at a distance, for I clung to my relatively cool spot.

Tuesday, June 12, was the great day of the feast and, because of the great heat and the Sirocco, it was an exhausting experience. After an unconscionable wait, the academic procession was paraded, by a very roundabout way, to the Archiginnasio, where the day's exercises were to be held. The sun was fiercely hot and the heavy gown of black silk extremely oppressive, but the sight of the crowd and the decorated streets made it worth while. The ceremony was in the open courtyard of the beautiful old building, which was made even more charming by flowers and hangings, while awnings excluded the sun's heat. At one end of the court was a raised platform, with a red velvet canopy, and there stood the gilded thrones for the King and Queen and their son, the Prince of Naples. Behind the Queen stood ladies in waiting and behind the King stood two equerries, army officers in dress uniform. One of these equerries, a very heavy, middle-aged man, must have suffered tortures. For the last hour, his knees shook so violently that, every moment, I dreaded to see him collapse. That exhibition of unnecessary cruelty did not increase my respect for royalty. The young heir apparent made an unpleasant impression, his dwarfish stature and loose-lipped mouth gave the conception of a weak, deficient character. His career, since he came to the throne, has shown that these were false inferences and that he is very much of a man.

At this ceremony, the speeches and addresses were unmercifully long-winded, especially that of the famous poet, Carducci, which was the especial feature of the occasion and which seemed to please King Umberto exceedingly. For myself, I could understand nothing but the oft-repeated "Italia unita," which never failed to evoke a storm of enthusiasm. The final feature of the programme was a series of brief addresses from the visiting delegates, each country choosing a spokes-

man who could use Italian, no other language being admissible. The Americans selected W. W. Story, sculptor and poet, long resident in Rome and an intimate friend of the King's. During the address, Umberto and Story repeatedly exchanged winks, which rather destroyed solemnity. After more than five hours of oratory, we were all exhausted with the heat and muscular exertion and weak for want of food.

The banquet on Tuesday evening and the degree-giving on Wednesday I did not attend, because of intense weariness and the sustained heat. I must, in closing, write down my impression that the whole celebration was an uncommonly brilliant success. In the preparatory period, the officials having it in charge seemed to be utterly confused and inefficient, but as soon as the show actually began everything went off with a smoothness and precision worthy of all praise.

At Florence I joined the ladies of my party in their *pension,* on the Lungarno. While we were there, the news arrived that the short and grief-filled reign of Kaiser Friedrich was over and the ill-fated time of Wilhelm II had begun. Of course, we had no idea of the world-wide cataclysm in which that time was to end, but the egotistical and impulsive character of the young Kaiser filled us with a vague uneasiness for the future. I think, however, that we should have been surprised to learn that the catastrophe was to be deferred for twenty-six years.

I took advantage of being in Florence to see something of the zoölogical museum, under Giglioli, and of the new geological museum in the Piazza di San Marco. Here I met Stefani, Weithofer, of Vienna, Hantkau, of Buda-Pesth, and Forsyth Major, a British subject, who spoke almost any continental language better than English and preferred German as a means of communication. He invited Weithofer and myself to visit him at his house in the village of Boscolungo, high up in the Apennines, and look over the remarkable collection of fossil mammals which he had just brought back from Samos. We gladly accepted and, leaving Florence by an early train, we took a carriage at Pracchia for a very long drive through the mountains and reached Boscolungo at four. On this drive, Weithofer told me a lot of gossip and scandal about the imperial family of Austria, for which he had no respect whatever. Among his tales was one of an Archduke, who was riding out in the country and met a peasant funeral, in which the coffin was carried on a bier. Ordering the bearers to put the bier on the ground, he jumped his horse back and forth over the coffin. In April 1925, I had, as a visitor in my house, Professor Abel, of Vienna, who

remembered and confirmed that story and added that the hero of it was the Archduke Franz Ferdinand, whose murder at Sarajevo in June 1914 started the World War..

Weithofer also told me of an undescribed skeleton of *Dinotherium* (a fossil elephant then known only from the skull) in the Vienna museum. At Boscolungo, where we arrived about 4 p.m., we found the evening uncomfortably cold, snow banks all around us, though it was the 16th of June. That evening and nearly all the next day we spent over the remarkable fossils from Samos.

I should like to record here a conversation, which, very soon afterwards, became of some importance in the history of science, when questions of priority of discovery were becoming acute. Among the fossils from Samos was the skull of a creature which had been named *Chalicotherium* and which, as the teeth showed, was clearly herbivorous; it had been assigned to the same group as the rhinoceroses. There were also the feet of a beast with huge claws, *Ancylotherium,* which was believed to be allied to the Pangolins, or scaly anteaters, of Africa and Asia. When, therefore, Forsyth Major declared his belief that these two apparently wholly unrelated animals were one and the same, Weithofer and I were scandalised and energetically dissented from such a heresy. However, we were anxious to learn Forsyth Major's reasons for his belief and asked him to explain. He replied substantially as follows: "No one had ever found the feet of *Chalicotherium,* or the skull, or teeth of *Ancylotherium,* yet they always occur together in the same beds; where you get one, you get the other." I admitted the force of this, but remained unconvinced.

Some weeks after this conversation, I was in Paris, where the eminent French palaeontologist, M. Filhol, invited me to come to the museum and see the new fossil mammals which he had been excavating at Sansan in the south of France. Among these was a complete skeleton, with the bones in their natural connections, which completely confirmed Forsyth Major's interpretation; the skull and teeth were those of *Chalicotherium,* while the feet were those called *Ancylotherium*! In a paper which I wrote shortly after my return home, I was happy to bear witness to Forsyth Major's independent discovery of this most interesting relation, thereby causing him to write me a very grateful letter.

I returned to Florence and picked up the ladies and we then made a hurried trip to Venice, Verona, Lake Como and, by diligence, over the Splügen Pass, from Chiavenna to Chur. Hurrying across Switzerland to

Schaffhausen, we took the Black Forest Railway, expecting to reach Heidelberg late that evening. On this journey occurred an event the story of which has, literally, gone around the world. Many people, in many places, have told me that story and, strange to say, always correctly. Nevertheless, I shall here give a first-hand account of what actually happened. When our train stopped at Donaueschingen, I asked the guard how long the stop would be and he replied, "three minutes." Accordingly, I ran into the station and was horrified to see the train leave without me in a minute or less. As I had the tickets and nearly all the money of the party, I was greatly perturbed by the ladies' plight, especially as none of them spoke German. I immediately applied to the station master for advice and he told me to telegraph to Villingen, the train's next stop, asking the party to return to Donaueschingen, which he arranged to have them do without cost. In the meantime, the unfortunate passengers were in consternation and began to discuss what they should do, when the Schaffner demanded their tickets. One of the girls said: "Oh! I know; I'll tell him, 'unsere Mann ist links'." An Englishman in the compartment, who could not restrain his laughter over this most wonderful, would-be German sentence, volunteered to be an interpreter and, when my telegram arrived, he put everything straight. Owing to this delay, we did not reach Heidelberg till three the following morning.

After a respite of four days I again started off, escorting the same party to Munich, where the ladies spent a week and then departed for Paris. My object in visiting Munich was to study the admirable collection of fossil mammals in the Bavarian State Museum. Professor Zittel, foremost of German palaeontologists, and his chief assistant, Dr. Max Schlosser, who had been in New Haven with Marsh, received me with all possible kindness and placed all the resources of the museum unreservedly at my disposal. Except Sunday, I spent every day and all day at work, delightedly drawing, measuring and describing a great wealth of material.

In the evening, I went frequently to the theatre or opera, a very cheap amusement in those days, and saw some of the first public performances of plays and operas which the insane King of Bavaria, who had been drowned but a short time before, had strictly reserved for his own delectation. Among these was *Die Feen,* a very early opera of Wagner's, written when he was still under Italian influence; it was chiefly remarkable for its scenery, as were also certain Indian plays, the stage-pictures of which I have never seen equalled, though the plays themselves were of no great interest.

My stay in Munich was interrupted by a flying visit to Vienna, to see the *Dinotherium* skeleton of which Weithofer had told me. To save time, I made the journey in both directions at night and to save expense, I travelled second class; the result of this twofold economy was to deprive me of two nights' sleep and, for some mysterious reason, I slept hardly at all the two nights I spent in the Vienna hotel. I had written to Dr. Fuchs, director of the Natural History Museum, concerning the rare specimen and had received a very cordial reply, so everything was ready for me, on my arrival. The skeleton was much less complete than I had expected to find it, but, nevertheless, there was enough to make my visit to Vienna very well worth while, to say nothing of the beautiful city itself and the wonderful picture gallery, which was still in the Belvedere. So far, this has been my only opportunity to see the Austrian capital.

In the summer of 1888, there was great tension between Germany and France and a serious danger of war that made every one nervous and apprehensive. That pasteboard hero, "le brave Général" Boulanger, had stirred up all the jingoes of France and seemed on the point of seizing power and making himself dictator. As a precautionary measure, the German Government announced that no one would be allowed to enter Alsace or Lorraine from France without a passport. This decree threatened to make my proposed visit to Paris impracticable, but the American Consul in Munich solved the problem by getting me a passport from Berlin. After a week-end visit to Augsburg, I had intended to visit the Museum at Stuttgart, but could not bear the thought of missing my little daughter's birthday. This omission was the less to be regretted because, at that time, the collection at Stuttgart, so famous for its reptiles, did not contain an important series of fossil mammals.

During these various trips through Germany, I fell into conversation with a considerable number of Germans and was greatly surprised at the tone of brutally frank satisfaction with which the death of the Emperor Frederick was discussed. No doubt, there were many people who lamented, but they must have been a small minority and I met none of them. The Empress Frederick, "the English woman," was as bitterly and as unreasonably hated as Marie Antoinette, "the Austrian woman," had been detested in pre-revolutionary France. While her letters to Queen Victoria prove her loyalty to Germany, there can be no doubt, I think, that she was tactless and persistently rubbed the Prussians the wrong way and even such gentle souls as our Fräuleins had no word to say in her defence. The Germans had an invincible belief

that she ruled her husband and moulded his policy in the interests of England and even Frederick's death was attributed to her preference for an English surgeon. The accession of the young Kaiser was jubilantly hailed, as it was believed that he would maintain the Bismarckian tradition.

Once again, my stay with my family was very brief and, after three days, I started for Paris, going by way of Trier and thus fulfilling my long-cherished ambition aroused by the lithograph in our Plöckstrasse apartment in Heidelberg, where my Mother and I had lived nearly ten years before. On that first visit, I could allow myself only one whole day in Trier, but it was a day full of fascination, for that now insignificant town was, during a century, the capital of the Roman Empire and has kept "the most remarkable group of Roman remains north of the Alps." The wonderful Porta Nigra is a monument unique in Europe, and the Baths, the Imperial Palace, the Basilica of Constantine, the Cathedral, the Amphitheatre and the Bridge are full of interest for one who has a taste for Roman archaeology. The museum contains a fascinating collection of marble and bronze sculpture, mosaics, glass, etc. I bought a fat, dull and dry history by one Leonhardy; his book, which I laboured through in Paris, is marred by bigoted Catholicism, but is a mine of information.

In Paris, I took rooms in a *pension,* 29 Boulevard Haussmann, which Mrs. Post and her charges had just left and which she and her party of girls had patronised in 1883. Its one drawback was the great distance from the palaeontological museum, where I was to work. Before coming to Paris, I had written to M. Filhol, who had no official position, but was a rich independent (it would be misleading to call him an amateur) who worked in coöperation with the Museum and the Académie des Sciences. In this letter I asked M. Filhol to appoint a time and place for me to meet him and see something of his famous collections of fossil mammals. One evening, shortly after my arrival in Paris, I was waited on by a young Scotsman, who behaved in a very mysterious manner and seemed very suspicious of me. At last he produced my letter and asked me to explain it; it had been delivered to M. Filhol, director of the Bon Marché shop, who had been much mystified by it, which was not surprising.

After some delay, I got into the Galérie de Paléontologie and was permitted to take fossils from the cases and study them at my leisure. Throughout my stay, however, an unfortunate attendant, in a blue blouse, had to be with me, to make sure that I didn't steal anything.

I call him unfortunate, for day after day that wretched man had to sit on the steps and do nothing, except to take an occasional look at me, as he was too polite to watch me steadily. Of course, his presence was an insult to me, the kind of treatment which I have met with only in France; the contrast with my experience in Germany and England was most striking.

I met the grandees of the Musée de l'Histoire Naturelle: Gaudry, who struck me as a man of little force; Filhol, an able and vivacious little man; Fischer, a taciturn and rather surly Alsatian, and Milne-Edwards, the distinguished zoölogist. I was present one day at an informal conference of these men, minus Fischer, and was astonished at the backwardness of their views, for they really seemed never to have heard of Darwin. Filhol very kindly allowed me to study his remarkable collection; part of which was at his country house at Sèvres, where I took luncheon with his family, part at his Paris apartment, in the Boulevard St. Germain, and part at the museum. He had many superb things, such as I saw nowhere else in Europe.

I was anxious to visit Rheims and see Dr. Lemoine's remarkable collection of fossils, which he had gathered on his own property. At this spot is a geological formation, not well represented elsewhere in the Old World, but corresponding very closely in time with certain rocks in New Mexico and Wyoming. I wrote Dr. Lemoine to see if I could not arrange a time to call on him and examine his fossils, but we were unable to find a date that should be convenient to both of us. He was so kind as to visit me at the museum and take me to his apartment in Paris, where he showed me the unpublished drawings of his fossils. For each one he had almost the same formula: "Chose très drôle; un peu de pachyderme, un peu de carnivore, un peu d'insectivore; très drôle, très drôle!"

At a dealer's, to whom M. Filhol recommended me, I found a fine collection of fossil mammals and birds from the Miocene of St. Gérand le Puy. The owner asked a moderate price for it and I immediately wrote home to Pyne, asking him to cable me an authorization to buy it, which he promptly did, and I made the purchase from Heidelberg, asking to have the bones shipped to me there. When the collection arrived, it was necessary to have a new and much stronger box made for it and repack the specimens in that chest for their long journey to America. I was disgusted to find that the dealer had held back some of the choicest specimens, for which I had paid. It was also through M. Filhol's kind assistance that I was able to secure a fine lot of fossils

from the Phosphorites de Quercy, in the south of France. These collections and those which we have obtained by exchange have given our museum a very useful series of European mammals.

I returned to Heidelberg by way of Metz and Trier, where I had a most delightful visit in examining the Roman antiquities. I had time to walk several miles up the river to Igel and inspect a unique Roman monument there, a four-sided columnar structure of a ruddy sandstone, surmounted by an eagle. The especially interesting thing about the monument was the series of carvings in relief, which displayed scenes from the life of a cloth-maker, the whole in wonderful preservation.

Shortly after my restoration to the bosom of my family, my second daughter, Mary Blanchard, was born (September 1). She has often wished that she might have postponed her arrival in this sublunary sphere until her parents' return to America. Her German nativity was an embarrassment during the World War, when she was an army nurse. The month of September was, thus, an enforced vacation, for there was but little material for my studies, within easy reach, except at Darmstadt. I made several visits to the museum there at the invitation of Dr. Lepsius, and utilised the opportunity to see the great Holbein Madonna, of which the one at Dresden is a copy, and the beautiful Rembrandts. Most of the time, however, I spent in the study of Trier, its history and antiquities. Chiefly for my own amusement, though not entirely without mercenary motives, I put together an article on the ancient town and assembled photographs and drawings to illustrate it. To anticipate, I may say that the article, which I called "A German Rome," was published in *Scribner's Magazine* in 1889.

We went down the Rhine to Rotterdam, on a Dutch steamboat, a most uncomfortable journey of three days, for the boat tied up every night. We sailed from Antwerp on October 5, reaching New York after an entirely uneventful voyage. Among the letters which awaited me was one inviting me to take part in founding the Geological Society of America, but I was too late and thus missed the chance of being one of the charter members of the Society.

Shortly after my return, I was walking with Professor Mildner, of the German department, who, though born and educated in Prussia, was a loyal and patriotic American and was much loved in Princeton. We were talking about the important events which had been happening in such rapid succession in Germany, especially the accession of the Emperor William II and the prospects for his reign. Mildner said:

"There is an old prophecy in Germany that the empire will come to shipwreck under a ruler with a withered arm. Not," he added as an after thought, "that I have any fears for the future of Germany." I need hardly add that I do not regard this prophecy and its fulfilment as anything more than an interesting coincidence. It was well that Mildner did not live to see the World War, for it would have broken his heart.

CHAPTER TWENTY

DR. PATTON'S ADMINISTRATION

WE opened a new chapter in our lives by moving into our own house at 56 Bayard Lane. We began housekeeping with three and a half servants, the half being the part-time work of a man to look after the furnace, cut the grass, etc. The united wages of the three maids were less than half of what a cook, or general servant, receives nowadays.

The academic year 1888-1889 was the first under Dr. Patton and it sufficed to show the slackness of his ways. The Trustees were most unreasonable in not giving him a stenographer or a private secretary, thus forcing him to write all his letters with his own pen. Soon, he was bitterly criticised for not answering letters, but the criticism should have been directed against the Board rather than against the overburdened President. He stated openly, in Faculty meetings, that he had no belief in discipline and that it was a good thing for a young man to come to college, even if he did no more than rub his shoulders against the buildings. As he wittily phrased it: "It is better to have come and loafed, than never to have come at all." That there is something of value in this idea, I am inclined to believe, but to manage an American college on that system is to invite disaster. In this country the struggle for existence is so much less intense than in Europe, that young men are not penalised here for neglecting their educational opportunities so severely as they are there.

As elsewhere narrated, I spent the summer in eastern Oregon, on the seventh of my Western expeditions. In the following winter I had one of the most disagreeable and annoying experiences of my life. I had invited the members of the preceding summer's expedition to dine together at my house and was momentarily expecting the arrival of my guests, when I received a call from a Mr. Ballou, with an introduction from Cope; I had heard of him before and knew that he was a friend of Cope's, who had named a fossil for him. When, therefore,

he told me that he was investigating the U. S. Geological Survey, in general, and the scientific iniquities of Powell and Marsh, in particular, I had complete confidence in him and told him what I had heard. Of first-hand knowledge, I claimed almost nothing and gave my information as having been told me by others. Nothing was said about newspaper publication and I had no suspicion that the caller was a newspaper man and meant to print my remarks. I do not mean to bring any accusation of treachery against Mr. Ballou, who may very well have supposed that I knew all about his profession. Cope subsequently wrote me a letter, in which he took for granted that I had fully understood the situation.

Some weeks later, I was greatly surprised to receive a very curt and peremptory letter from Marsh, saying that the *New York Herald* was threatening to print an attack upon him by Cope and others, that he had seen the article, which contained certain derogatory statements by me and demanding to know whether I had authorised the publication of these statements. I immediately replied that I had authorised no publication and did not even know what I was alleged to have said; I also wrote the editor of the *Herald,* asking him to suppress anything that purported to have come from me. Though I thoroughly disapproved of Marsh and would have rejoiced to see him removed from any connection with the U. S. Survey, I did not at all like this sensational method of newspaper attack. The editor of the *Herald* declared that my letter had not been received, a perfectly incredible statement, for, even under Mr. Wanamaker, the Post Office did not lose letters between Princeton and New York. Had I been better versed in slippery ways, I should have registered the letter and got a receipt for it.

Marsh showed great ability in attempting to ward off the threatened attack and was not very scrupulous in his methods of defense. Cope was a professor in the University of Pennsylvania, the Provost of which had been involved in a blackmailing case, the rights and wrongs of which I never knew. Marsh wrote to the Provost, demanding that he silence Cope, on pain of having his own scandals aired. The *Herald,* getting wind of this, let the Provost know that he would have cause to regret any attempt to interfere with Cope's freedom of speech. After all this preliminary manoeuvering for position, the great gun was fired, the *Herald* printing pages of statements by Cope and by several men who had been Marsh's assistants and very damaging they were, but the great sensation was not even a nine days' wonder; it fell completely flat. The public of those days knew nothing and cared less about such

matters; vertebrate palaeontologists were few, a feeble folk, and they were already against Marsh, who had a strong following, especially in New England, of men in other branches of science. He was President of the National Academy of Sciences, a position of great influence, from which newspaper squibs were not likely to dislodge him.

For the remainder of Marsh's life, he and I did not speak and all relations between us ceased; he had also quarrelled with Osborn, whose position in New York was far too strong to be affected by anything that Marsh could say or do. With all his scientific following, Marsh had very few personal friends and it is significant that, at the Century Club, his nickname was "the Great Dismal Swamp." He revenged himself upon me by keeping me out of the National Academy and told Hatcher: "I should like to make friends with Osborn; I don't care anything about Scott." Not long before his death, Marsh wrote me a letter, in which he threatened me with a libel suit for certain derogatory statements which I was alleged to have made about him in my lectures. I got a lawyer to write to tell him that I declined to have any correspondence with him. The letter itself I sent on to Osborn, part of whose answer under date of February 19, 1898, is as follows: "I had a long interview with Marsh in my study—we went over all the old ground. He is evidently very anxious to make up with me, but I gave him no encouragement. . . . P. S. He is simply trying to bluff you to keep you quiet."

During the year 1890, I published several more or less elaborate papers, including one with Osborn, upon a second collection of fossil mammals from the Harvard Museum. This was the last of our coöperative productions. In the summer I made another short trip to the White River bad lands of Nebraska and South Dakota, as has been described in Chapter XVI. In the autumn, I lost my old friend and associate, Dr. F. C. Hill, a loss which was not repaired for many years, for, personal feeling aside, his assistance to us in the preparation of our fossils was invaluable. Our third daughter was born in November 1890. Alas! we were not to have her long.

The year 1891 was a black one indeed, for then my dear friend Osborn accepted a call to Columbia University and the American Museum of Natural History, in New York. His leaving Princeton was a great grief to me and I never entirely recovered from it. In a letter to my Wife, of July 5, I wrote: "Morning and afternoon at the museum, where I saw the last of Harry, as he left in the afternoon for Garrisons, never to return, except as a visitor: 'Oh! miserie'." I must recognise that Osborn's moving to New York was of immense benefit to that city and to Amer-

ican science in general. He never could have done here the work which he accomplished there, since only in New York could he have had such immense sums of money at his disposal. He made the American Museum one of the greatest and, in some respects, the very greatest museum in the world, created the Bronx Zoölogical Garden and greatly developed the Castle Garden Aquarium. His expeditions made collections all over the United States, Canada, and Mexico, as well as in Patagonia, India, China, Mongolia and Egypt, while the immense body of his publications made him one of the most distinguished and widely known figures in the whole history of American science. Needless to say, Osborn's removal to New York caused no diminution of our friendship. The dedication of a book, which I published in 1913, to Osborn and Speir "in token of forty years' unclouded friendship," remains as true as ever, though both Harry and Frank have gone and dedications can no longer reach them.

In my account of the expedition of 1893, I mentioned a very brief visit to the Columbian Exposition at Chicago on the way out, and I made a much longer stay on the homeward journey. In the meantime, my Wife and Mother had journeyed to Chicago to meet my Brother, H. Lenox, who had been ordered there from Fort Sill, Okla. It has been my constant misfortune that nearly all my travelling has been done alone. Most of my travelling has been done at other people's expense and has had, therefore, to be managed with the most careful economy.

Of my first visit I wrote: "I took a trip in an electric launch through the lagoons and, in this way, saw all the principal buildings from the best points of view and in the most advantageous grouping. It was overwhelming! No descriptions, no pictures can prepare you for the amazing result. The lavish use of sculpture gives the most delightful skylines imaginable and the lagoons, with their reflections, add the most charming effects. Never was there such a sight on earth and it is a continual grief to think that these, cloud-capped towers, these gorgeous palaces, are so soon to vanish."

So far as I am aware, there was among visitors, American or foreign, no dissent from the opinion that the great "Court of Honour," with its enclosing buildings, its fountains and statues, its colonnades and the shoreless, blue lake as a background, was the most marvellously beautiful spectacle of our day and generation. From the Centennial at Philadelphia, in 1876, to the Columbian Exposition at Chicago was only seventeen years, and I doubt if such progress in architecture and the allied arts was ever before registered in so short a time; it was incred-

ible. On my way home from the field, I made a much longer visit to Chicago, but my pleasure was sadly marred by a distressing illness.

My uncle, Colonel Stockton, found himself unable to struggle any longer with the load of debt which he had inherited with Morven and the place had to be sold. Happily, it did not go out of the family, for Dr. Shields bought it for his son-in-law, Bayard Stockton, with whom he continued to live, and entailed the property on his grandsons. The large area of ground between Morven and Bayard Lane was sold to the Princeton Inn (now Miss Fine's School) one of the unfortunate hotel enterprises of which we have seen so many. A license to sell alcoholic beverages was regarded as vital to the success of the new enterprise and the law required that the application should be signed by the property owners within a certain radius, and my Mother was greatly distressed by the notoriety which her signature brought her. For reasons unknown to me, the fanatics fell upon this project with passionate rage, though what they saw in it different from any other hotel, I cannot imagine.

Because of the new Inn, another savage attack was launched against the College, though, I believe, this one did us no great damage. My Mother received several letters, all from strangers, some of them abusive, others merely reproachful, asking how she could be guilty of such wickedness. A lighter touch was given by Lawrence Hutton, who remarked to Dr. Richardson, the chief librarian: "Morven is progressing, last century it contained but a single Signer, now it shelters two." (Dr. Shields and Mr. Stockton had both signed the Inn's application.) "Yes, that is true," replied Richardson, "but then they signed for liberty, now they are signing for license."

In March 1894, twins were born to us, our second son, Hugh Lenox II, and fourth daughter, Sarah Post. The boy, though a healthy, sturdy baby, lived but a few weeks, when an attack of bronchitis swept him away and again we had to face the devastating grief of losing a child.

Our dear old Dr. McCosh died the following November. He had begun to fail both mentally and physically, as John Alexander's portrait of him distinctly shows. Shortly before his death, Sloane, who had gone to see him, had a terrible struggle with him, to keep him from going downstairs, for the old man still kept something of his great muscular strength. When, at last, he was put back to bed, he smiled and said: "Well, I gave ye a tussle, didn't I?" The reminiscences of Dr. McCosh which are scattered through these pages form the best portrait of him that I can make. That I admired and loved him and thought him a

great man, will have been made sufficiently plain, but I cannot flatter myself that I have conveyed any adequate conception of him.

In the summer of 1895, I went abroad, for the first time in seven years, to attend the meetings of the British Association at Ipswich and the International Zoölogical Congress at Leyden. There was time for a hurried visit to Heidelberg, where my friends gave me a welcome of delightful cordiality. My family spent the summer with my oldest brother on Lake Muskoka.

The Ipswich meeting, to the best of my recollection, was memorable only for the announcement by Dr. Ross, of the British Army Medical Service, of his demonstration that malaria was transmitted by the bite of certain species of mosquito. This confirmed Koch's suggestion, which, though a stroke of genius, was yet an unproved hypothesis. In other respects, the meeting was very much of the usual sort, though I enjoyed it greatly, as the opportunity of meeting many old friends.

The Congress at Leyden was a much more brilliant affair, as it was attended by the most eminent Zoölogists of all countries. The outstanding figure there was that of Professor August Weissmann, of Freiburg in Baden, who had become the Pope of the Neo-Darwinists. He was the first to give authoritative denial of the transmissibility of acquired characters, which Darwin himself had accepted, and to set up Natural Selection as the sole factor of organic evolution; he published a paper entitled "The Omnipotence of Natural Selection." So widely did Weissmann's views prevail in England and Germany that it was almost impossible, for a time, to secure publication for any paper that was in opposition to those views. Violent and angry partisanship characterised the discussions and an intolerant fanaticism took the place of scientific calm. The creed of the Neo-Darwinists was: "There is no god but natural selection and Darwin is its prophet." The Leyden Congress was the battleground, where some of these controversies were fought out and where the interest was sustained to the end.

The Congress was to open formally on a Monday morning, but most of the visitors had arrived by Sunday evening, when they were assembled in the suburban beer-garden belonging to one of the clubs. My friend Hubrecht, of Utrecht, jumped up on one of the iron tables and made an address of welcome, equally divided into German, French and English. Not only were the three languages, all foreign to him, correctly spoken, they were elegantly and beautifully spoken. When I congratulated him on this remarkable *tour de force,* he laughed and said: "Oh! well, we Dutchmen are compelled to learn foreign lan-

guages, for nobody will bother to learn Dutch. Besides, that's all I know; my Italian is very rusty and I've clean forgotten my Malay." Rusty, or not, his Italian was still very fluent.

The principal address, delivered publicly and before a plenary session of the Congress, was by Weissmann, who spoke upon his theories of heredity. He spoke in so low a tone and kept his face so persistently bent over his manuscript, that I caught just a single phrase of the intolerably long discourse. At one of the sectional meetings, at which Weissmann was present, Eimer, of Tübingen, made a violent attack on him. The great Freiburger was not accustomed to that sort of thing and was beside himself with rage. So burning red a human countenance I have seldom beheld, as he left the room, fairly sputtering with wrath, but he made no public reply.

One of the most interesting of the ceremonial occasions of the Congress was the evening public lecture, given by R. Bowdler Sharpe, of the British Museum. The lecture was a full-dress affair, honoured by the presence of the Queen and the Queen Mother. It was the only time I ever saw Her Majesty of Holland, who was then a very attractive child of fifteen, or so. Another and much more agreeable occasion was the *diner intime* at Scheveningen, given by the Dutch members of the Congress to the foreign visitors. There I met, for the last time, as it proved to be, M. Filhol, who had received me so hospitably in Paris seven years before. He told me that he had recently got hold of the skull of a French fossil rhinoceros, *Cadurcotherium,* which, as I had suspected, proved to be nearly identical with the American aquatic rhinoceros that Osborn and I had named *Metamynodon.*

In November of the same year, the family was completed by the birth of our fifth daughter, Angelina Thayer.

The Patagonian Expeditions, much the most important scientific enterprise with which I have been associated, were inaugurated by Hatcher's sailing from New York, on February 29, 1896. He took with him his brother-in-law, O. A. Peterson, then on the staff of the American Museum, for many years past associated with the Carnegie Museum in Pittsburgh. This expedition came near to bringing about the only misunderstanding that ever arose between Osborn and myself. Some months before Hatcher sailed for South America, Osborn told me that he expected to send an expedition to Patagonia, to which the extraordinary discoveries of the brothers Ameghino had directed the attention of palaeontologists the world over. In telling me of this project, Osborn enjoined the strictest secrecy on me, saying that a premature

disclosure of his plans would seriously interfere with their execution. Of course, I respected his confidence and told no one.

Hatcher's scheme, on the other hand, was entirely his own and was concocted between himself and some of the students whom he had just taken out on the '95 trip, especially John Garrett, subsequently the U. S. Ambassador to Italy, and his brother Robert. I knew nothing of this scheme, as Hatcher knew nothing of Osborn's plan, until everything was ready and the money, for the most part, raised or pledged. It was very natural for Osborn to think that I had not been frank with him and was hiring away one of his staff without saying anything to him about it. As soon as he learned, however, that the project and the securing of Peterson's coöperation were due to Hatcher, who, in turn, had not the least idea of anticipating any of Osborn's plans, he saw that no one was to blame for the cross-purposes, which had arisen from ignorance on both sides. Mr. Morris K. Jesup, then President of the Museum, felt much aggrieved at our action, until I called on him and explained the whole matter, step by step, when he declared himself entirely satisfied.

In the summer of 1896, I conducted a party of students to the Grand Cañon of the Colorado, a trip that made no pretence of scientific work.

Returning to Flagstaff, we went south into the more or less desert and low-lying region of central Arizona. In this trip we were joined, much to the pleasure of us all, by Dr. C. Hart Merriam, then head of the U. S. Biological Survey, and Dr. Fernald, chief of the Forestry Division of the Department of Agriculture. We visited the Tonto Basin, with its wonderful natural bridge, and the Cliff Dwellers' ruins in the valley of Beaver Creek and the Rio Verde and, altogether, had a most memorable experience.

On the way home, I made a detour to Fort Sill, in Oklahoma, where my Brother had been stationed since 1888. He was kept very busy with a multiplicity of duties, as he had command of the Indian troop of the 7th Cavalry and was also in charge of the Apache prisoners of war. These Indians belonged to Geronimo's band, which had surrendered to General Crook in 1886, on condition that their lives should be spared. They had originally been sent to Alabama, but there the moist climate had been fatal to them and many died. In consequence, they had been taken to the much drier climate of Oklahoma and settled on the military reservation of Fort Sill. I accompanied my Brother on some of his trips of inspection and admired the success with which he had converted these savage murderers into farmers and cattle raisers. Every

morning, while I was there, an Apache prisoner drove around the post with a wagon load of canteloups which he sold for five cents each; they were the best I have ever eaten. Old Geronimo himself I saw but once, when he was engaged in a 'coon hunt; he seemed a very mild and harmless old gentleman, but his looks belied him. Though prisoners of war, the Apaches needed no guard; they were credited with 2,500 murders in their years of warfare and knew very well that only on a military reservation would they be safe from the vengeance of the whites.

That autumn, every one's mind was filled with the excitement of the presidential election. I did not relish the idea of voting for McKinley, but it was utterly impossible to vote for Bryan. During the summer, I had made quite extensive journeys in Arizona, New Mexico, Colorado, Kansas and Oklahoma, and had everywhere listened to the political talk going on around me, in trains, waiting rooms and hotels. The impression that I gained from all this was that the current in the Western states was running strongly to Bryan and I am inclined to believe that, had the election been held in July or August, Bryan might have won. But the spectacular rise in wheat, and the clear demonstration that the price of wheat was determined by the law of supply and demand and not by the price of silver, cut the ground from under Bryan's feet. Some of his followers seriously threatened to repeal the law of supply and demand, but they never got the chance.

CHAPTER TWENTY-ONE

THE SESQUICENTENNIAL AND AFTER

OCTOBER 22, 1896, was the one hundred and fiftieth anniversary of the granting of our first charter, and the friends of Princeton were determined to make a great occasion of it. While I was "junketing" in the West, Professors Fine and Marquand were going about Europe, bearing personal invitations to the great scholars of various countries to attend the Sesquicentennial celebration of October 20, 21, 22. They gathered an illustrious company and, among many others, they gave an invitation to Wundt, of Leipsic, which was at first accepted. While they were discussing the matter with the famous psychologist, a colleague of his happened in and, learning what was under consideration, expressed his horror of crossing the sea. "Where will you sleep on shipboard?," he asked, "on the deck?" "Ach! nein, Herr College!" replied Wundt, "da hat man Hammicks!"

The celebration proper was preceded by several courses of lectures, which American scholars were invited to attend and which were subsequently published. Brugmann, of Leipsic; Klein, of Göttingen; J. J. Thompson, of Cambridge; Dowden, of Dublin, and Hubrecht, of Utrecht, were the speakers and these lectures would have conferred great distinction on any occasion.

The three days' celebration was a most brilliant success, the credit for which was due to Dean West, as he shortly afterwards became. I don't think that his Great Committee, of which I was a member, was of much assistance. Even the weather was propitious; that had been a most disagreeable October, with continual rain and fog and hardly any sunshine at all. Our three days, on the contrary, were radiant, of the sort typical of the American October, but, no sooner was the celebration over, than the clouds returned and it began to rain again. Successful though it was, the occasion was not altogether free from drawbacks. President Eliot, who was always a wet blanket at other peoples' shows, made the address of congratulation on behalf of the visiting delegates

and it was the most studiously disagreeable speech that I ever listened to, a veritable torrent of cold water. Another speech aroused the indignation of Charles Dudley Warner, who described it scathingly as "that Silurian address." But these unfortunate effects were as spots on the sun; everything else went off as well as heart could desire.

The first function was an evening concert by Damrosch's Orchestra, before which the distinguished guests were entertained at dinner in various households. With several others, we had the venerable Dr. Joseph Leconte, the famous geologist of the University of California, and we were all charmed with him. Our dinner-party attended the concert in a body and sat together. Never have I had such an experience as that evening was; I have heard finer music, and more finished playing, but never have I been in so festive, sparkling, brilliant an atmosphere as that was. This feeling was not peculiar to me; many people spoke to me of it and, I think, every one felt it. All through the evening, dear old Dr. Leconte kept saying in an undertone: "Delightful, oh! delightful," and he was merely expressing the general thought.

The main address of the celebration was given by Woodrow Wilson, on *Princeton in the Nation's Service*. Fine as it unquestionably was, this address was an unfortunate illustration of what Mr. Wilson himself called his "single-track mind." Many of the delegates, especially General Walker, then President of the Massachusetts Institute of Technology, were outraged by what they took to be an attack upon science, when the speaker was merely protesting against the application of methods drawn from the chemical laboratory to the problems of history. He often, and not least in his campaign speeches, failed to see the way in which his words could be misinterpreted, and to guard against that misinterpretation. The poem, *The Builders,* was written and recited by Henry van Dyke; I liked it very much, but some of the English visitors were very critical of it.

The honorary degrees were conferred upon an extraordinarily distinguished company of scholars, American and European. On Wednesday evening there was a torchlight procession, for which a reviewing stand was put up in front of Nassau Hall. Dr. Patton had given a dinner to the European guests and, when he had to go to the station to meet President and Mrs. Cleveland, he put the party in my charge. We had scarcely taken our places on the reviewing stand when the President drove up, escorted by the City Troop of Philadelphia Cavalry in their quaint eighteenth century uniforms and, amid the cheers of the immense crowd, took his place on the platform. The procession

was an unforgettable sight; the lights along Nassau Street, seen through the red and yellow autumnal foliage, made a fairy scene.

The next day, after the degree-giving, Mr. Cleveland read a carefully prepared address and received a tremendous ovation from the crowd, which packed Alexander Hall. When he finished, his audience fairly rose at him in irrepressible enthusiasm, for his speech was of great political significance. He explicitly repudiated Bryan and his free-silver heresies and, in that audience, there could hardly have been a handful of people to whom that was not good news. Friday evening, the University Club of New York gave a reception to the delegates, to which I was invited. I dined with Osborn and went to the reception with him and D'Arcy Thompson, then of Dundee, an old friend of Cambridge days. Thompson had been sent out to the Pacific coast by the British government in connection with the dispute over the fur seals, and was on his way home. The one thing I remember about that reception (it was a rather dull affair) was the sight of Professor Marsh, standing in the middle of the floor and whirling around, so as to bring his back to me as my name was called out.

Three changes, more or less revolutionary, began with the Sesquicentennial: first the change of name from the College of New Jersey to Princeton University; secondly, the adoption of the English collegiate style of architecture, best exemplified by Oxford and Cambridge. Sloane had been much pleased by Pembroke Hall at Bryn Mawr and urged that the new Blair Hall should be given to Cope and Stewardson, the architects of Pembroke. Pyne also, in building the new library, instructed his architect to follow Oxford precedents meticulously. Thus began the great building programme which, with its advantages of site, have made Princeton one of the most beautiful of American universities. The third change which, though seemingly trivial, was really important, was the systematic adoption of academic costume for all formal occasions.

Immediately after the celebration it was announced that Sloane was leaving Princeton for Columbia. He told me that one large factor in inducing him to make the change was his sense of humiliation in being a defeated candidate for the presidency. This was a terrible blow to me and the cause of a grief only less than that which the loss of Osborn had occasioned. Happily, Sloane kept his Princeton house and made it his home from his retirement to his death. In both cases my sorrow and consternation were almost as much for the College as for myself. In this respect, the coming of Henry van Dyke was a compensation,

for his great reputation as a writer has always been an important asset.

Early in 1897, West announced the great news that Mr. Cleveland had bought the house in Bayard Lane which he afterwards named "Westlands," and would settle in Princeton in the autumn. Almost immediately, he was elected to the Board of Trustees and, for the remainder of his life, he took the greatest interest in University affairs, especially in the Graduate School and College. Soon after Mr. Cleveland came to Princeton, I called on him and, notwithstanding all I had heard of his extraordinary industry, I was astonished at his minute and detailed knowledge of everything pertaining to the U. S. Government and its interests. He had never been in the Far West, whereas I had been there many times and had visited many of the military posts and Indian agencies and had an extensive personal acquaintance in the Army, but I could tell him nothing. He knew it all, both more extensively and more accurately than I did, and that was only a small part of the enormous task in which he had been engaged.

About that time—I cannot date it exactly—some question or other attracted a good deal of public interest and a friend of mine in New York asked me what Mr. Cleveland thought on the subject, to which I replied: "There's very little that I can do for Mr. Cleveland, but one thing I *can* do and that is, not to quote him." That remark came to Mr. Cleveland's ears and brought me in a rich reward of confidential and inside information concerning his life in Washington. Strange to say, I have forgotten almost all of it.

In that same year Cope died in the most unnecessary way, for his life might have been saved by an operation. Osborn had made all the arrangements for a New York surgeon to take Cope's case, at a much reduced fee, and Cope had agreed to go on to New York for the purpose. Unfortunately, however, there was a marked, though transitory, improvement in Cope's condition and he put off the operation and went down to Virginia on a wild-goose chase after fossils of which he had heard. His condition soon became desperate and he returned home to die.

Among the many very able men whom it has been my privilege to know, Cope was one of the foremost, Francis Balfour and Dr. Patton being his only rivals for first place; I think Seelye was quite right in calling him a genius. He always had such an immense body of material before him that he worked too fast and revised his work too little, which led to the making of many mistakes in matters of detail. When

these were brought to his attention, he allowed no petty vanity to stand in the way of their correction.

There was an amusing case in which some of Marsh's collectors played a trick on Cope. He was out in the Bridger country working over the same ground as one of Marsh's parties. He noticed that these men scratched and dug at a certain spot and then went away without taking up anything. His curiosity aroused, he went over to see what had interested the other collectors and found the rather poor specimen, which they had abandoned as not worth taking, but Cope thought otherwise and dug it out of the enclosing rock. It was part of a skull, so badly weathered that only the base of it remained, together with some loose, scattered teeth. The teeth belonged to quite a different animal from the skull and had been "planted" by Marsh's men. Cope was completely deceived and, when he got the specimens home, he gave the fragment a hurried inspection and published the description of a new species with that skull and those teeth.

Some years later, I wanted to find out just what that species was, for I could make nothing out of the description. Accordingly, I went to Cope's house in Philadelphia and, seeing the questionable specimen, I said: "In our collection there is the base of a skull just like this, except that it has the teeth in place and they prove that these teeth do not belong to this skull." Cope would not immediately admit the error, though he remembered and told me the episode of Marsh's men and granted the possibility of their having put the teeth with the skull. At last, I said: "Let me take this skull with me and compare it with ours." "All right," he replied, "take it along." A few days later, when he visited me, I laid the two skulls side by side and asked him to point out any differences between them. After making a careful comparison, he said: "You're right; those fellows fooled me. Now all I ask is that you let me make the correction myself," which, of course, I was glad to do.

When I first made Cope's acquaintance, he still had the fortune which he inherited from his father; unfortunately he invested it in silver mines which, for a time, gave him a very large income and then gave out completely. In that time of impoverishment, he once said to me: "I don't know where my next month's board is coming from." An appointment in the University of Pennsylvania rescued him from this extremity, but I fancy the salary was comparatively small, for he always seemed to be in narrow circumstances. Nevertheless, he clung to the *American Naturalist* which he had bought in his prosperous days and which gave

him a medium of publication, and to his great collections. His house was a museum with almost no furniture in it; in his study were his desk, a sofa and a couple of chairs and in another room was a camp cot. I went to see him in his last illness and sat beside that cot, surrounded by piles of fossils in boxes and trays. He literally sacrificed everything to his work, which filled all his thoughts, and he reduced his expenses to a minimum, living more like a monk in his cell than a famous professor.

Despite his greatness—in some measure, indeed, because of it—he had some unfortunate personal peculiarities, was pugnacious and quarrelsome and made many enemies, though, to Osborn and myself, he was always kindness personified. He was extremely unpopular in Philadelphia and there never was a better illustration of the prophet without honour in his own country. In those days, the Academy of Natural Sciences was a hotbed of gossip and the members loved nothing so much as to run Cope down. But he didn't appear to mind and all the snapping at his heels seemed rather to amuse him.

Marsh died in 1899, following his great rival after a couple of years. What I have said of him hitherto has been in disparagement, and so great was my dislike of him that I might enlarge at length upon that head. I did not, however, fail to recognise his great ability, nor the extraordinary services which he rendered to palaeontology by a long series of really wonderful discoveries.

In July 1897, Hatcher and Peterson returned from their first Patagonian expedition with a great collection of fossil mammals from the Santa Cruz beds and invertebrates from the Patagonian formation, together with many recent birds, invertebrates and plants. For four months they remained at work, cleaning and preparing the fossil mammals; then Hatcher started again on his second trip, taking with him Mr. A. E. Colburn, of Washington, the ornithologist. Peterson remained behind, to continue the preparation of the Santa Cruz material.

In the same summer, Mr. N. H. Darton, of the U. S. Geological Survey, invited me to join him for a short time while he mapped the White River beds of South Dakota and Nebraska, where I had worked so often. Making a very fast trip by the Union Pacific, I found Darton's party encamped at Gering, Neb., near Scott's Bluff and on the North Platte River, where, in Bill Nye's famous phrase, it is "a mile wide and an inch deep." In the party was Professor Barbour, of the University of Nebraska, whom I was especially glad to meet, for he had been one of Marsh's men who had taken part in the great attack of 1890.

I was also pleased to see Scott's Bluff, a remarkable sight in itself and made famous by Parkman's *Oregon Trail*. On this trip I did no riding, but travelled in a buckboard; we worked north to the bad lands at the head of Quinn Draw in South Dakota, where Hatcher had made such wonderful finds four years before. Thence I went with Barbour to Lincoln, Neb., where I made a short stay, examining the many fine fossils which Barbour had gathered in his museum.

That was the summer which followed the election of 1896, in which Bryan had been so decisively beaten. He had failed to carry his own state, Nebraska, and his own town of Lincoln; it was made very plain that his fellow citizens did not wish to see him in the White House, where he must have made a disastrous failure. On the other hand, they would endure no personal criticism of him and any sneering or contemptuous reference to him was hotly resented. Though they would not vote for him, they admired and loved him. The "invincible ignorance" which Bryan displayed in that first campaign remained characteristic of him to the end of his life. When he went to the Philippines, he was guided by a young army officer, who became very much attached to him but who said that it was impossible for Mr. Bryan to learn anything. He could see nothing that conflicted with his opinions.

At the invitation of the Macmillan Company, I prepared for them a text-book, which I entitled *An Introduction to Geology* and of which the first edition appeared in 1897; a second edition was published in 1907 and the third in 1932. The book has had a very fair measure of success and has brought me many friends. When it was first published, an assistant in the library pointed out to a visitor a bookcase containing forty or fifty copies of the text-book, which had been ordered by members of my class, saying "have you seen Dr. Scott's new book?" The visitor, supposing that they were the different volumes of one work, exclaimed: "Great heavens! if that's the introduction, what's the subject like, when you get to it?"

Despite the enthusiasm aroused by the Sesquicentennial and the gifts of funds and new buildings which followed it, there was very general dissatisfaction with the low intellectual tone of the University. Dr. Patton seemed to take no interest in the development of the Graduate School, allowing Dean West to appoint the Faculty committee which administered the School. The Board of Trustees appointed an investigating committee, which held hearings and questioned most, if not all, of the professors, to see whether something could not be done to improve matters. I never heard of any result of the investigation, though

that may have been only deferred. At all events, it was a significant symptom of the general unrest and apprehension among Princetonians, which led to Dr. Patton's resignation in 1902. Dean West and Woodrow Wilson were among the most severe critics of the administration, with unfortunate results.

Dr. Patton never carried out his intention of being naturalised, for that would have involved the forfeiture of his property in Bermuda, where he was born and to which he clung with tenacious affection. He spent nearly all his summer vacations there and one year the family returned from Bermuda much amused by a joke on their father, which they hastened to spread in the community. At some celebration, Dr. Patton had been one of the speakers and an old coloured woman, when asked her opinion, had given the dictum that while "Mass' Hamilton was very good, Mass' Patton was altogether too mathematicated and academized" for her. The English language needs those words and should not hesitate to adopt them.

At the end of the year 1897 the Geological Society of America held its annual meeting at Montreal, where I had been requested to present a memoir on Cope as a geologist, almost to the exclusion of his work in palaeontology, which was, of course, the principal achievement of his life. The Society's headquarters were at the Windsor Hotel, where we had stopped on our wedding journey. There I met for the first time, and spent an evening with, the man who was subsequently to become so close a friend and associate, Professor C. H. Smyth, Jr., of Hamilton College. I was charmed with him and determined to get him to Princeton as soon as possible, for he was a petrologist and covered a side of geology of which I knew almost nothing, and I needed him to give the course its proper balance. By a strange coincidence, Smyth had already desired to come to Princeton and, after that meeting, wrote me several letters on the subject, but it was not till 1905 that we were able to offer him a position.

While at Montreal, I had the pleasure of lunching with Sir William Dawson and renewing my acquaintance with him, which was begun in my Grandfather's house in 1873. For the first time I met Dr. George Dawson, of the Canadian Survey, and accompanied him to Ottawa to see the Survey's museum. All of this was a charming experience and the cordial relations with the Canadian Survey, which were then begun, have been kept up, almost without interruption, ever since.

CHAPTER TWENTY-TWO

THE WAR WITH SPAIN

MY Brother had been ordered to Washington to prepare, at the Smithsonian Institution, an elaborate and fully illustrated treatise on the Indian Sign Language. He had not fairly started on this work when the outbreak of the Spanish War put a stop to it and sent him off to active service. The war also interfered with my plans, for I had rented my house and meant to take the family to Germany for a year. On account of the war we decided to remain at home, for a reason that I explained to Mr. Cleveland, whom I met in the street. He asked me when we expected to sail and I said that we had changed our plans and would stay at home. With a faintly contemptuous smile, he asked: "You are not afraid of Spanish cruisers, are you?" To which I replied: "Not at all; Spanish cruisers wouldn't trouble a British ship." I then went on to say that I had a vivid recollection of travelling abroad, when our currency was still at a heavy discount. While we should certainly win the war, we were so utterly unprepared, that we might lose some of the initial battles and even a temporary defeat would turn the exchanges against us. We might find ourselves in a foreign country and embarrassed by a depreciated currency. On this his comment was: "Ah! I hadn't thought of that; perhaps you are right."

Accordingly, it became necessary to find some place to spend the summer, Brookline, Mass., being already selected for the following winter. My Wife had the good fortune to discover Cataumet, on the Buzzard's Bay side of Cape Cod within three miles of Mr. Cleveland's place, Gray Gables. Cataumet has been our summer home ever since. My children love it above every other place on earth, and my grandchildren are following in the same path. During the summer of that year I was able to keep pretty steadily at work, but had to return to Princeton for a short visit in July. The 3rd and 4th of that month were among the most terrifically hot days that I have ever experienced, but the news that Cervera's fleet had been destroyed made us forget the weather. The Spanish Admiral proved himself to be a chivalrous and gallant

gentleman and was decidedly the hero of the war, even in America. When brought here as a prisoner, he received an ovation from the crowd whenever he appeared.

The defeat of Cervera put an end to a disgraceful panic along the coast and especially in New England. When word came that the Spanish fleet had sailed from Cadiz, people began to excite themselves over the probable bombardment of our coast and many left the seashore in a fright. How little real substance there was in this artificial scare, was made plain in the summer of 1917, when a German submarine visited Cape Cod and sank schooners and scows alongshore. The shells fell on the beach at Chatham and it was difficult to keep the spectators out of the line of fire. We heard the firing at Cataumet, but nobody seemed to care about it. No doubt, it would have been the same in 1898, but I was heartily ashamed of the fuss made over an imaginary danger.

Though we were only three miles from Gray Gables, it was not an easy matter to get there, for the trains ran at inconvenient times. We had to hire a "horse and team" (to use the curious dialect of Cape Cod, where "team" means a vehicle) and drive slowly through the sandy tracts, which then passed for roads. I had several talks with Mr. Cleveland concerning the war and the conditions in Cuba, which had led up to it. He told me some astonishing stories concerning the friendly manner in which the rebels and the Spaniards had divided the money paid for protection (blackmail, no less) by the sugar plantations, but I have forgotten the details.

Much more distinctly do I remember his deep indignation over some political appointments to commands in the Army. I said: "They don't seem to remember that they are throwing away men's lives by making such appointments," and he answered: "I don't comprehend it; how *can* they do it?" One day, when news was coming in of the friction between Admiral Dewey and the German Admiral von Diedrichs before Manila, I went over to Gray Gables by train and found calling there Mr. Richard Olney, who was Secretary of State in Mr. Cleveland's last Cabinet. We came away together and walked through the woods to the little railroad station. I said: "Mr. Olney, I would give ten years of my life to fire the first gun at that German fleet." He gave me a hearty clap on the shoulder and replied: "My boy! I'm delighted to find some one who feels exactly as I do."

In the autumn, after settling my family at Brookline, I returned to Princeton and took a room in what was then the new house of the Ivy Club, living there throughout the academic year. My relations with

the undergraduate members of the club were delightful. While never familiar, or "fresh," they treated me as one of themselves and did not make a guest of me. Coming out of the club one evening, I was astonished to find Hatcher at the gate. He had been driven out of Patagonia by a terrible attack of inflammatory rheumatism and, though the long, slow trip through the Tropics had greatly improved his condition, he had to remain at home for several weeks to recuperate. He started on his third and last expedition in December 1898, taking with him Messrs. Peterson and Barnum Brown, of the American Museum.

As curator of the geological museum, I had secured Dr. A. E. Ortmann, a young German who had already done such distinguished work, that he was made one of the collaborators in Bronn's *Klassen und Ordnungen,* etc. So long as he remained with us, he was an admirable and indefatigable investigator, but he was much too large a man to remain in the subordinate position, which was all that we could offer him at that time.

Having gone to Brookline for the Christmas vacation, Mrs. Scott and I were summoned home by my dear Mother's illness; she died on January 4 and once again I had a great sorrow to bear. On January 18 I wrote: "I have to chronicle another day of failure, I simply *cannot* work; try as I may, it seems impossible for me to accomplish anything but the merest routine duties. You must not think of me as wrapped in gloom, but I am stunned and cannot yet adjust myself to the new and radically different conditions of life. I am, however, beginning to sleep better, though distressful dreams do continue, in which the whole dreadful battle of suspense and despair has to be fought through again. . . . 'The only real misfortune is the death of those we love'."

Hatcher and Peterson returned from their last Patagonian expedition in August 1899 and, very shortly after that, they accepted positions in the new Carnegie Museum in Pittsburgh, which was another stunning blow to me. My lack of resources had once again made itself very painfully felt. Before he left Princeton, Hatcher made a suggestion that bore magnificent fruit. The expeditions had brought back immense collections, not only of fossil mammals but also invertebrates in great abundance. In addition, botany and nearly all branches of recent zoölogy were well represented. The next problem was to find a medium of publication for all this mass of material, much of it new to science. Hatcher's suggestion was that we should attempt to raise a fund to publish the whole in a series of uniform reports, instead of scattering it through the various journals and the transactions of learned societies.

Hatcher's proposal appealed very strongly to me and I took it up with Mr. Junius Morgan, then on the staff of the University Library, who thought that his uncle, Mr. J. Pierpont Morgan, might be so far interested in the project as to finance it. My estimates of cost could be no more than blind guesses, for at the outset it was impossible to say how many plates and how many pages of text would be needed, but I thought that, probably, $25,000 would be sufficient. Mr. Morgan gave us an appointment at his house in Madison Avenue, to present our case. Accordingly, at an early hour in the morning, Osborn, Junius Morgan and I went there and waited in trembling anxiety, while Mr. Morgan finished his breakfast.

When he appeared, I explained our plan and Osborn made what may have been the deciding argument, to the effect that the scheme which we had in mind was the sort of thing that was usually done by governments rather than private individuals. Mr. Morgan listened, as I thought, indifferently, asked a perfunctory question or two and my heart sank, as I said to myself: "He cares nothing about it; he's going to turn us down." Suddenly and without preface, he said: "All right, I'll do it," and, in a tumult of astonishment and joy, I shot up out of my chair, as though propelled by a powerful spring. When he displayed some of his manuscript treasures to us, I was in such a state of exaltation over my glorious good fortune that I could not focus my attention upon them.

As soon as I had Mr. Morgan's assurance that the money would be forthcoming, I went to Mr. Charles Scribner, to ask whether his firm would publish the reports, but he strongly advised me to be my own publisher, as, in that way, I should escape the overhead expenses which any publishing firm would be obliged to charge. I saw the force of this disinterested advice and followed it as best I could, though I am not sure that it would not have been wiser for me to decline that responsibility. The first stage in the enterprise, the selection of a body of collaborators, was already almost complete. Paper makers and printers had to be interviewed in order to secure the best quality at the lowest possible prices. The size of the contract made it worth the while of even the big printers to go out after it. Professor Bliss Perry, who had left Princeton to become the editor of the *Atlantic Monthly*, wrote me in behalf of Houghton, Mifflin and Company and Mr. Houghton came to see me for a personal interview. It was evident that he greatly desired to secure the contract, chiefly, I am confident, for the honour and glory of putting out such a piece of work.

Very much the lowest bid came from a firm in Lancaster, Pa., which I felt compelled to accept, much as I wished to give the work to the Boston people, because of the beautiful sample page which they submitted. I wrote Mr. Houghton, asking if I might use that page as a guide to the successful bidders, saying that I knew it to be a very unusual request which I ventured to make, but that this was not a commercial enterprise and neither I nor any of my collaborators, was to receive pay for our work. He very handsomely consented and to his generosity is due the exceptionally fine appearance of the quarto page.

After the peace treaty with Spain had been concluded and the first American military occupation of Cuba effected, my Brother was ordered to Havana, as adjutant to General Ludlow, who commanded the city, General Brook being in command of the whole island until relieved by General Wood. In the Christmas vacation of 1899 I secured an order to go to Havana by an Army transport, paying only for my meals. There was no impropriety in this, as it cost the Government nothing. When I boarded the ship at her Brooklyn pier I immediately noticed something familiar about her and, on examination, the transport *Sedgwick* turned out to be the old *City of Chester*, which had taken us to England in 1888. The ship's surgeon, too, turned out to be an old acquaintance, for he was the doctor of the *Berlin*, on which I had crossed in 1895. I reached Havana on Christmas Eve and found my Brother quartered with his staff in the vast Maestranza de Artilleria, in which room was readily found for me.

On Christmas Day we dined at Quemados with General Fitzhugh Lee, son of the great Confederate leader and a most genial, humour-loving soul. On his staff I was delighted to find Dr. J. A. Kean, who had been out with us in Dakota and Nebraska on the expedition of 1890.

The week I spent in Havana was full of interest, not only in going about and seeing the city and the surrounding country, but also in what I learned from our officers of the Cubans and Spaniards and their, to us, extraordinary ways. Especially enlightening was a talk with Colonel Bliss, then in charge of the customhouse. As Lieutenant-General Bliss he distinguished himself in France during the World War. Bliss had put fifty of his clerks under arrest (I saw them marching to jail) for collusion with certain merchants in evading the payment of duties. I asked him: "What about the merchants? are you going to arrest them too?" To which he replied: "I can't arrest the whole city of Havana; there isn't a commercial fortune here that's been made in any other way." He explained the extraordinary mixture of the most meticulous

honesty in private dealings with shameless graft in transactions with the Government. Of the delinquent clerks he said: "It isn't so much their robbing of their own people; what I can't stand is to have them think I'm such a fool as not to see through their tricks."

Hatcher told me of a Spaniard whom he met on the Straits of Magellan and who insisted that the Spanish fleets which had been destroyed at Manila and Santiago had been sold to the Yankees. So topsy-turvy were the Spanish conceptions of honour, even more so than the Prussian, that this man thought it less disgraceful to his country to have venal admirals, who would sell out to the enemy, than to be beaten in a fair fight. Graft is, unfortunately, not unknown in our own dear country, but what scandalised us all in Cuba was the universality of it and the social standing of the people who practised it, not to mention the childlike naïveté of their methods; if forms were observed, substance did not matter.

General Ludlow was very polite and hospitable to me and made a deep impression on me as a man of strong intellect and character, as well as a polished man of the world. When I went to bid him good-bye, I said, in thanking him for all his kindness: "General, I'm very glad to have had the privilege of making your acquaintance." He laughed and, turning to his Adjutant General, replied: "Scott, some of these Cubans don't think it's so much of a privilege to meet me, do they?" When Generals Ludlow and Chaffee were ordered to the Philippines and General Wood relieved General Brook, my Brother became Adjutant General of the island and, during General Wood's long absence, the Acting Governor. He has recorded some of his experiences in this capacity in his *Memories*, but has omitted one tale that should not be lost.

One of the young officers under him took a month's leave and ran over to Hayti, where he engaged as guide some government functionary who, though very black, spoke very fair English. The Haytian proved to be an excellent guide, who showed the visitor everything of interest that could be seen within the limits of time. When paying him off, the American said: "You have a wonderful country here—why don't you make something out of it? Why don't you stop all this nonsense of revolutions and get down to work and raise more crops and less hell?" The darkey replied: "Oh! that would do very well for you cold-blooded Northerners, but us Latins has got to have more excitement."

Shortly before I left Havana, my Brother and I were greatly saddened by the news that our uncle, Colonel Stockton, had died suddenly on

Christmas Day. We were both strongly attached to him and never did boys have a kinder and more indulgent uncle than we had in him. He was especially fond of my Brother who, like him, was a cavalry officer and shared his tastes for shooting and other forms of sport in a way that I, despite valiant endeavour, could never succeed in doing.

On New Year's Day, the *Sedgwick*, returning from Cienfuegos, picked me up for the voyage home. Before starting for New York, however, she had to go to Nuevitas, at the eastern end of Cuba, and take on a battalion of the 8th Infantry, which had been stationed at Puerto Principe. The run along the north coast of Cuba was interesting and beautiful; it was the first time that I had seen long stretches of coral reefs, or great schools of flying fish, or fleets of the exquisite "Portuguese Men of War." In short, it was my first voyage through sunny and mirror-like tropical seas, with all their wonderful exuberance of life, and I was delighted to see the things of which I had so long read and heard. The Men of War carried me swiftly back to Huxley's laboratory, where I had first made their acquaintance from glass models.

Neuvitas Bay is an interesting example of the bottleneck harbours of which Cuba has so many; a long, narrow, winding entrance, opening out into a great sheet of water. Once at anchor in the Bay, we had a most tedious wait of a week, till the doughboys could get all their plunder down from Puerto Principe and taken on lighters three or four miles to the transport. I went ashore once, but a single inspection of the mud hole called Nuevitas was sufficient. Somebody ought to have been court-martialled for the delay, which was very costly to the Government. The ship's gossip made the infantry colonel responsible, saying that he was so loth to leave Puerto Principe that he would make no move to get ready until the transport was actually in harbour. As to the truth of this, I have no means of judging, but I can testify that the "old man" was as savage as the proverbial bear with a sore head and I successfully avoided him during the voyage.

On board the *Sedgwick* was the Havana correspondent of a New York newspaper, who spoke to me of my Brother in terms of high admiration, an admiration which was not entirely mutual. That paper had been extremely critical of the military government of Cuba and never had anything good to say of it. The object in view was the laudable one of holding the Washington administration to its pledge of independence for the island, but the means employed were contemptible. Once, when this correspondent came to the Adjutant General's office in search of news, my Brother said to him: "Look here! Soandso,

you've got to stop lying about us; we don't expect any eulogies, but we have a right to insist that our actions should not be misrepresented to the people at home." The correspondent replied: "Colonel, it's really not my fault; when I wrote what I saw here, I got a wigging and was told that I had been sent here to find fault; the paper won't print anything but criticism."

At long last, after an exasperating wait, we got away from Cuba and set a course that carried us outside of the Bahamas. There, far out of sight of land, we had a little adventure unlike anything that I ever experienced at sea, before or since. We sighted a little, white, Spanish brig, that was lying almost motionless and flying signal of distress. We ran over, to give assistance and, as we came near, the brig's people put up a great blackboard on which was written, in chalk: "We are lost, please give us the longitude." When she had gained the desired information, the little brig squared away on quite a new course.

CHAPTER TWENTY-THREE

THE PATAGONIAN REPORTS

IT was obviously necessary for me to go abroad and make arrangements with some European publisher and also to secure some sort of a contract for the many lithographic plates which would be needed. Most of these could only be made in Germany, within my limit of cost. As part of my expenses would have to be met from the publication fund, an even more rigorous economy than usual would be demanded. Through a friend, I got passage on a tramp-steamer without a passenger license, paying the sum of $20 for my board. That voyage, with its many discomforts, was far more interesting than the usual crossing on a liner. A most disagreeable episode was running ashore on the French coast, which gave all hands a good fright, but we finally got off and limped into Havre, leaking. The first night ashore I spent at Rouen, going on to Paris the next morning, and I was greatly struck by the change in the ways of French railway travellers; in both journeys every one sat in dead silence and I did not hear a single word spoken. I was told that this was due to the Dreyfus case, which had so split France into warring camps that people were afraid to talk to strangers.

I went to Paris in order to attend the International Geological Congress, which was held in connection with the *Exposition Universelle* of 1900, and found Osborn and his wife at the hotel, and von Zittel came in to luncheon. I had a talk with him on the subject of a European publisher for the Patagonian Reports and he advised me to go to Stuttgart and interview E. Nägele, publisher of *Palaeontographica*. In the evening I went to the reception given to the Congress by the Société Géologique de France and there I met the eminent French geologist, de Lapparent, whom I never had another opportunity to see. He was a very polished, agreeable man and he made one remark that was very illuminating with regard to conditions in France. It was in reply to my question as to why he, in his admirable text-book, put the Pikermi formation, of Greece, into the Miocene, when its Pliocene age was so much more

probable. He shrugged his shoulders and said: "On ne peut pas contrarier M. Gaudry." To that, no reply, consistent with good manners, was possible.

I spent Sunday in Strassburg, my first visit there, and was very much interested in all that I saw. In the hotel reading-room, I picked up a German newspaper and happened on one of those fantastic lies which were often used in the campaign against America by the German press. Originally begun at secret government instigation, in order to discourage emigration, it was kept up after emigration had nearly ceased. This particular fiction described a terrific hurricane, which had laid waste the whole Atlantic coast of the United States, destroying all the great cities from Boston to Savannah, with the loss of millions of lives. Panic-stricken for my family, I was about to cable home for news, when for the first time I noticed the date of the paper and saw that it was a fortnight old.

Some days later, I received a letter from my Wife, written on the evening of the alleged catastrophe, one passage of which was substantially as follows: "I am writing on the front porch by the light of your study lamp, which shines through the window. It is a wonderfully calm and peaceful evening, with cloudless sky and brilliant moonlight." Altogether, it was a mysterious episode, for what could the paper expect to accomplish by printing lies that were sure to be exploded in twenty-four hours?

The publishing house in Stuttgart, to which von Zittel sent me, was an old established firm with the very long-winded name of the "Schweizerbartsche Verlagsbuchhandlung." It was then in the hands of Mr. E. Nägele with whom I had a very satisfactory interview. He agreed to be the European publisher of the Patagonian Reports, wherefore the name of the firm appears on all the title-pages. He was to attend to the European business, with the exception of the lithographic plates which, of necessity, I should have to look after myself. At last, I got a chance to examine the wonderful fossils in the Stuttgart museum and to renew my acquaintance with E. Fraas, who had succeeded his father as director. Fraas was one of the most genial and lovable Germans I have ever known and his early death was a great loss to science.

A visit to my dear friends at Heidelberg brought home to me the changes that death had wrought. The pension at Unterneckarstrasse 19 had been given up, for one of the sisters was dead and the other had gone to keep house for her brother-in-law. It was with great sadness that I walked past the house that was endeared to me by so many de-

lightful memories. It now has a bronze tablet recording that Jacob Gould Schurmann, Ambassador of the United States, had lodged there in his student days.

At Frankfort, I interviewed the great lithographic firm of Werner and Winter, which had already done a lot of work for me and in the most satisfactory manner. The firm then consisted of the elder Werner, an old man, who died a few years later, his son and young Fritz Winter, a very attractive young man, who had studied with Chun in Leipsic and was killed in Poland in the last war. I called at the office and explained our plans for the Patagonian Reports and was delighted by the attitude of the three partners, who seemed much more concerned in doing their utmost for me than in making a profit from it. Especially was I pleased with old Herr Werner, who declared that I was doing the firm great honour in selecting them for the work. Matters were not sufficiently advanced for the making of contracts; indeed, we never did make any. They gave me preliminary estimates for the different classes of plates and promised to quote the lowest possible prices consistent with the best quality of work. This pledge they kept most meticulously.

In England, after brief visits to friends, I went to Bradford for the meeting of the British Association and there was quartered on some very hospitable folk, who lived in the suburb of Apperly Bridge. The whole experience at Bradford was delightful and I enjoyed every moment of it, especially an afternoon excursion into the most "romantic" scenery I ever beheld. I sailed from Liverpool on the Leyland Liner, *Devonian*, on her maiden voyage. A few days out we ran into a gale, which increased in violence till it became a hurricane and, in sailor's parlance, "took charge of the ship" for three days. We could make only three or four knots, hardly more than steerageway. After landing, I learned that, in all probability, we had run into the tail end of the hurricane that destroyed Galveston, and could only be thankful that it wasn't the head.

Hatcher and Peterson had gathered a wonderful series of fossil mammals from the Santa Cruz formation of Patagonia, and what made the collection especially valuable was the large number of partial and complete skeletons which it contained. In working up this superb material, the first necessary step was the determination of the fossils which had already been named, chiefly by Ameghino, but this I found to be impracticable, for the papers of the Argentinian palaeontologists were very inadequately illustrated, or not at all. It was not possible to name our fossils with any confidence and, therefore, there was but one thing

to do and that was to go down to Argentina and study the collections at Buenos Aires and La Plata, especially the "types," the specimens to which the names had been originally given. This was an ambitious and expensive undertaking, and, once again, I had to call on my friends to help me finance it.

At the suggestion of Dr. C. Hart Merriam, I bought a camera, for photographs of the type-specimens would be much more useful than descriptions. At that time much the quickest and best route to Argentina was by way of Southampton and I sailed to Antwerp on May 29, made my business round of Stuttgart and Frankfort, stopping, of course, at Heidelberg. In London, I made arrangements for instruction in photography from a professional who was very much bored with me, for I had to come to him after business hours, when he wanted to knock off work. Though the teacher was indifferent and rather cross, I learned enough to accomplish an immense amount of indispensable work in Argentina and I also bought a complete equipment for developing and printing, not a very costly affair.

When I was in London, I attended a meeting of the Zoölogical Society, when Sir Harry Johnston, the creator of Uganda, was present and gave an account of that most extraordinary beast, the Okapi, which he had lately brought to light from the Congo forests. Every one was astonished to learn that so large an animal could have escaped discovery so long. It was a curious coincidence that, when I returned from South America the following November and remained only forty-eight hours in London, I should have happened on another meeting of the Zoölogical Society, at which the whole mystery of the Okapi was revealed. The complete skin and skeleton of the extraordinary creature had been secured and, as Oldfield Thomas said of it, it was more like a beast out of a fairy book than a real live animal from Equatorial Africa.

By another lucky chance, Señor Moreno, director of the La Plata museum, was in London, and, at the urgent advice of Smith Woodward, I called upon him and explained the nature of my errand to Argentina. His reception of me was most cordial and he promised me a lot of letters to the various officials of his staff, which would ensure me a profitable visit. Not only was Señor Moreno's presence in London a fortunate circumstance for me, but his absence from La Plata was no less so. To explain this surprising statement I must sketch the *carte du pays paléontologique* of Argentina, which was amusingly like our own, as Cope used to say with a laugh. Burmeister, head of the National Museum at Buenos Aires, was, Cope said, the equivalent of Leidy,

Moreno of Marsh and Ameghino of himself. The comparison was unfair to Leidy, who would never have been guilty of Burmeister's performances, but the old German was dead at the time of my visit and enters my story in a very subordinate way.

Between Moreno and Ameghino there was an internecine quarrel, a situation much like the Owen-Huxley, Marsh-Cope feuds, plus the fiery temperament of "us Latins." Señor Doctor Don Francisco Moreno was a wealthy man, who was the founder and first director of the La Plata Museum. As assistant director, he called Florentino Ameghino from Cordoba, where he had been a professor in the university and had already gained considerable reputation by his palaeontological work. Very soon the two incompatibles quarrelled violently and intense bitterness of feeling resulted. Ameghino was forced to resign his position in the Museum and deprived of his means of livelihood, while a Swiss surveyor, Mercerat, was imported as palaeontologist. Refusing to be driven out of the field, Ameghino, with splendid pluck, opened a stationery shop. He and his wife lived like hermits in a corner of his large house, all the rest of which was given up to his shop and his collections. Every penny that he could scrape up was devoted to keeping his brother Carlos at work collecting fossils in Patagonia and to the publication of his papers. In the history of science, I do not know a finer example of courage and devotion under the most adverse circumstances. The long, brave struggle was, at length, fitly rewarded by Ameghino's appointment to the directorship of the National Museum in Buenos Aires, which he held till the end of his life.

In palaeontology, Moreno was rather an amateur. He made quite a successful collecting trip to Patagonia and his special prize was the greater part of a skull of a new and very peculiar animal from the Santa Cruz formation. This he intended to name and describe himself, but, before doing so, he went off on a journey, leaving the precious skull in his private room at the museum. Old Burmeister, who had got wind of the discovery, slipped down to La Plata, where he was allowed to see the new skull, and then went off and published a description of it giving it the name of *Astrapotherium magnum*. Naturally, Moreno was infuriated by this high-handed procedure and tried very hard to substitute his own term, *Mesembriotherium,* but in vain. The rigid law of priority, which governs zoölogical nomenclature, requires that the name first given shall stand.

Not content with importing Mercerat from Switzerland, Moreno invited R. Lydekker, the distinguished palaeontologist of the British

Museum, to make two journeys to La Plata and prepare two beautifully illustrated folio volumes on certain fossil mammals and birds of the museum's collections. After his return to England, Lydekker published in a scientific magazine an article on palaeontology in Argentina, in which, without naming him, he severely and unjustly criticized Ameghino's work. The latter made a dignified reply, reviewing temperately, but effectively, the hasty and slipshod work which Lydekker had done in La Plata. He complained that the distinguished visitor had spent some weeks within a mile of his house and yet had neither visited him nor seen his collections, an examination of which would have saved Lydekker from making many mistakes.

When I was in London, on my way to Argentina, I asked Lydekker why he had so studiously avoided Ameghino; his reply explains why Moreno's absence was a fortunate circumstance for me. He said: "I went out to La Plata on Moreno's invitation and at his expense, to do a certain piece of work for him; if I had once visited Ameghino, it would have involved an immediate breach with Moreno and I should have had to drop the work and come home." After I had been some time in La Plata and had come to know Ameghino well, he once complained to me of the way in which Lydekker had treated him. Seeing that he was really hurt, I thought it only right to repeat to him what our British confrère had said to me on that subject. Ameghino's relief was pathetic and he said: "I am extraordinarily glad to hear that, for I thought that Lydekker had meant to put a deliberate slight on me. Now I understand and am greatly relieved." In Moreno's absence, I was able to maintain good relations with both sides and I needed both, as essential to the work that I had to do.

On June 20 I sailed from Southampton by a Royal Mail liner, on a very long and tedious voyage, mitigated by some interesting stops, at Corunna, Vigo, Lisbon, Pernambuco, Bahia and Rio Janeiro. The number of passengers was small, as is usually the case at that season, and almost all were business men, without professional people or tourists. A very attractive young American on board was an excellent illustration of the absurd ways our manufacturers were then taking, to win trade in South America. A syndicate of paper-makers had combined to send this young man to Brazil and the Spanish-speaking countries, to solicit orders. He spoke no language but his own and it is not surprising that, as I afterwards heard, his mission was a failure. In certain lines, however, we were beginning to learn more of foreign trade and to go about it in more intelligent fashion, but this had its drawbacks. I was de-

pressed and saddened to learn from an Austrian commercial agent on board, of the dread which America's growing economic strength was beginning to arouse in Europe.

After a day at Montevideo, we came up the river by night and landed on the morning of July 14 at Ensenada, the port of La Plata. Like Byron, I awoke and found myself a celebrity, for Moreno had been better than his word and had not only sent me a thick bundle of letters of introduction, but kept cabling to the Argentine newspapers about me and my visit to the La Plata Museum, making it out to be an event of the first importance. The Buenos Aires papers heralded my arrival in huge headlines and, from time to time during my stay, laudatory paragraphs would appear. I must confess to a liking for appreciation that is sincere and spontaneous, but that sort of thing was so evidently manufactured, that it merely annoyed me. At last, there appeared a paragraph which I knew could only have come from Lehmann-Nietsche, anthropologist of the La Plata Museum, for it was a Spanish translation of the account which I had given him of Mr. Morgan's financing of the Patagonian Reports.

When I taxed him with the authorship, he admitted it without hesitation, whereupon I expressed my dislike of that sort of thing and my hope that it might stop. His reply explained not only his own, but also Moreno's propagandist activity and was to this effect: "Of course, if it really annoys you, we will do no more of it, but we hope that you will not forbid it, for it is important to us." In great astonishment I said: "Of what possible importance can it be to any of you?" "It is very advantageous to the Museum, which is dependent upon the favour of an ignorant Provincial Legislature and it's a great feather in our cap to have a distinguished foreign palaeontologist come ten thousand miles to study our collections. The bigger man we can make you out, the better the impression on the powers that be." This disarmed me; I owed so much to the Museum and to the courtesy and friendliness of all the staff, that I was glad to make any return in my power.

Shortly after arriving in Buenos Aires, I went down to the extraordinary city of La Plata which, at the time of my visit, was like a city of the dead. The failure of the Barings, in London, had been a terrible blow to Argentina and had halted work on the public buildings of La Plata, the new provincial capital; most of these were empty, roofless shells. Some thirty thousand people had settled in this artificial town but I never could comprehend how they lived, for they seemed to have nothing to do. In places, walls had fallen, covering the sidewalks with

loose bricks, which were allowed to lie as they fell. The streets were paved with rough stones, between which the grass was growing. After I had moved to La Plata, I walked a mile or more every evening, from the hotel where I dined to my rooms in the Museum, and hardly ever met any one except the Basque milkman, who rode perched on the top of his cans, carried in paniers on the horse's sides. I am informed that since the date of my visit, La Plata has been transformed and is now a thriving place.

The Museum is a large, handsome and spacious building, which contains very valuable collections. It is a fine monument to the zeal and energy of Señor Moreno. Happily for me, the staff was made up almost exclusively of Germans and German-Swiss, so that I had no linguistic difficulties. The acting director, Catani, was Swiss, as was also Roth, palaeontologist. Roth's son-in-law, Hauthal, geologist and mineralogist, Lehmann-Nietsche, anthropologist, and Bruch, zoölogist, were Germans. I am under the greatest obligations to all these gentlemen, who did everything in their power to render my stay pleasant and profitable. The Museum contained a large dwelling for the director and his family and part of this was assigned to my use. I was given a bedroom, bathroom and study; the watchman's wife, a French woman, gave me my morning coffee and rolls for a very moderate payment. This hospitality on the part of the Museum enabled me to live very economically, an important consideration. As my living expenses were much smaller than I expected, I was able to devote a considerable sum to the purchase of collections for the museum in Princeton.

Lehmann-Nietsche took me to Ameghino's house and introduced me. I was received with the utmost cordiality and all the collection placed unreservedly at my disposal. Ameghino said that he was glad that I had come to study his fossils, "because now the palaeontologists of Europe and America will recognize that I have done my work loyally." We arranged that I should spend the afternoon of every day but Sunday in his house and a regular routine was soon established. The morning I spent at work in the Museum, then I joined Lehmann-Nietsche at luncheon in the Hotel Mainini, walked up to Ameghino's and spent the afternoon there. Most of my work consisted in photographing the type-fossils of the Santa Cruz formation of Patagonia. After some experimenting, I learned to make my exposures rapidly, developing the plates after dinner, since, at night, my bedroom and bathroom together were excellently adapted to this purpose. Prints had to be made in the morning, by direct sunlight, for I used the old-fash-

ioned "printing-out paper." This system enabled me to do a very large amount of work.

My rooms were desperately cold, too much so for photographic work, and so I had a fire of quebracho wood in a little stove of about the diameter of an ordinary stovepipe; it was astonishing to see how efficiently that little contraption made entirely comfortable my large and lofty room, which was some eighteen feet high. After finishing the day's photography, I spent the remainder of the evening in the study of Spanish. One of my first tasks was to prepare a bibliography of all the books and papers in English, German, Spanish and French that had been published on the geology and palaeontology of Patagonia, and, more especially, those dealing with the fossils of the Santa Cruz formation. Much the most numerous and important of these publications were in Spanish and by the generous assistance of Pyne, to whom I wrote, I acquired for the library a valuable series of the more costly works.

The only medium of communication that I had with Ameghino was bad French, which he spoke very fluently, but pronounced as though it were Spanish. Gradually, however, we reached a basis of mutual understanding, and could communicate with each other readily. Every afternoon, at half-past four or five, he would appear with a tray for making tea; I could not bear to dull his enthusiasm by telling him how greatly I disliked that beverage and solemnly imbibed two large cups. During the tea-drinking we discussed the problems of palaeontology and squabbled with the most perfect amiability, for we never agreed about anything and yet we never lost our tempers and always kept the discussion on a purely objective plane.

Ameghino had a theory, so passionately held that it amounted to an obsession, that all the various groups of mammals, including Man, had originated in Argentina and spread from there, an utterly inconceivable hypothesis. I went to La Plata decidedly prejudiced against him, but a brief acquaintance removed that prejudice entirely. Not only did his heroic devotion compel respect, but I came to value his work as I had not done before. Nearly all of the known Santa Cruz fauna had been named and described by him and our great collections added but few forms that had not been named before. The immense value of the work done by Hatcher and Peterson consisted in their skill as collectors, in obtaining skeletons of many creatures that had previously been known only from scattered bones, or even from fragments. The object of my journey to Argentina was to learn how our fossils should be

named and thus avoid a great duplication of terms, which was already bad enough. Among the Santa Cruz animals there is one unfortunate creature to which no less than twenty-seven different names have been given. Of this list only one can be used, the name originally given by Owen to a specimen brought home by Charles Darwin, *Nesodon imbricatus*.

What made Ameghino's work on the Santa Cruz fossils so especially valuable to me was its pioneer character, which relieved me of an immense amount of drudgery. Until he began his work on it, very little of the Santa Cruz fauna was known, though it was discovered by Darwin, and the few scraps that had been brought back by collectors had, very generally, been misinterpreted by their describers. He thus entered a new and unknown world of extremely rich and varied mammalian life, totally different from the contemporaneous mammals of the Northern Hemisphere. He not only described and named a host of new species and genera, but he marshalled them in orderly array, referring them to their proper families and orders. I soon learned to trust his judgement and accept his results, sometimes following him too uncritically into errors. Argentina does well to be proud of his memory, for he was a "native son," though of Italian descent.

I was now toiling almost as hard as I had done in Heidelberg the year I took my degree there. When I considered the immense mass of work that lay ahead of me, photographing, measuring, describing, translating and writing, I felt like the hero in the fairy tale who was condemned, on pain of death, to dig away a high hill, in a single night and with a glass pickaxe and shovel. I did not fear being put to death, but I sometimes felt desperate over the length of my exile from home; it seemed impossible to accomplish my allotted task within any reasonable time. However, Darwin's favourite motto, "it's dogged as does it," carried me through it all. Naturally, I had little time for amusements of any sort. Social life, in our sense of the word, hardly exists in the Spanish-speaking countries and so the few private houses that I entered were all, except Ameghino's, those of foreigners.

An evening at the Deutscher Verein of Buenos Aires offered distraction of very different character. Lehmann-Nietsche introduced me and, in spite of my inability to join in the beer-drinking, I was very hospitably received. The address was made by a young German, who was a surgeon in the Bolivian army. There had been a boundary dispute between Bolivia and Brazil over a region known as Acre, which, after long neglect, had suddenly sprung into importance as valuable rubber

territory. Bolivia sent a detachment of troops to hold the disputed lands and the young man who spoke to us was the surgeon of it. The expedition met no enemy, save the terrible enemy of the country itself, and not a shot was fired, but a more dreadful tale of hardship and suffering I never listened to. The story was told in a quiet, matter-of-fact way and one felt assured that there was no exaggeration, rather an understatement in the telling. The Bolivians were obliged to give up Acre and surrender to the first Brazilians they could find.

On September 6 arrived the news of President McKinley's assassination. I was at dinner in the hotel, when a newsboy came in with what passed for extras in that town. It was a small slip of paper, some six inches by four, on one side of which was printed the cablegram, announcing the fact in three or four lines. So far as I can remember, the crime caused no commotion in Argentina, but the polite German teller in the bank where I kept my account took occasion to rail at the murdered President and denounced him as an international danger. Though I could not grieve for McKinley, I was apprehensive as to the adventures into which the impulsive "Teddy" Roosevelt might lead us.

As the day of my departure for home drew nigh, I had another burst of intense activity in winding up my various lines of work and packing the spoils of birds, fossils and books, which I had acquired by purchase and exchange. When these were boxed, they formed a large wagon load. Of my photographic prints, I made up two large albums, one for Ameghino, containing all the pictures I had made of his fossils, and the other, for myself, in which I mounted all the photographs I had taken in La Plata and Buenos Aires. This album I found to be of inestimable value in my work on the Santa Cruz mammals, especially as Ameghino had, in the most generous fashion, given me permission to publish reproductions of any of his material that I might need, a favour of which I took liberal advantage. I did not like to rely upon a verbal permission, since misunderstandings so easily arise over oral agreements. I therefore wrote Ameghino a letter, asking if I had correctly understood him to authorise me to publish figures of his fossils in my forthcoming reports. To this letter I received a very cordial reply, in which he repeated the permission so explicitly that no misunderstanding would be possible. He even went further and offered to let me take home with me, for description and illustration, a fine skull of a new and undescribed species, an unusually generous offer.

All my La Plata friends came to see me off, when my steamer sailed from Ensenada. In addition to the stops which we had made on the outward voyage, we spent a day at Santos, the great coffee port. Dr. H. von Ihering, for many years director of the Sao Paolo Museum, did me the honour to come down and meet me and I had a long talk with him. Santos, too, I found very interesting without going ashore. The modern-looking equipment of cranes was not used; a line of brown-skinned, bare-legged porters kept passing to and fro between the warehouse and the ship, one line of men with sacks of coffee on their necks and shoulders, the other returning for a fresh load. They told me that a sack of coffee weighed 125 pounds and most of those slender, spindle-shanked and fragile-looking men carried one sack each, but several of them carried two. It seems incredible that such men could support a load of 250 pounds.

Stops at Rio, Bahia and Pernambuco were preludes to the long voyage. After leaving the Brazilian ports, passengers were not allowed to go ashore until we reached Southampton, because the plague was endemic at Rio and the voyage was not long enough to make up the period required by quarantine regulations. At the Cape Verde islands, Lisbon and Vigo, it was exasperating to see the land and yet be imprisoned on shipboard. In England, I spent but forty-eight hours and, as elsewhere told, I attended a remarkable meeting of the Zoölogical Society. The voyage from Liverpool to New York was most uncomfortably cold and I lived principally in the smoking-room. I landed on November 29, just five weeks after sailing from Ensenada, a most dreary and monotonous period.

CHAPTER TWENTY-FOUR

WOODROW WILSON AS PRESIDENT OF PRINCETON

AT the Commencement of 1902, Dr. Patton's administration came to an end in general dissatisfaction. He had, it is true, secured the growth of the college in numbers and material equipment and had added several distinguished men to the Faculty, but, intellectually, there was stagnation. Dr. Patton's resignation and Woodrow Wilson's election to succeed him were announced simultaneously and every one felt that the right thing had been done; if there was one dissenting voice, I failed to hear it. Happily, there was no interregnum and no time for the formation of parties and the setting up of candidates, with all the accompanying bitterness and ill-feeling.

Woodrow Wilson had been my friend since our undergraduate days and such, I am proud to say, he remained to the end of his life. We had been intimately associated on the athletic committee, which long consisted of Wilson, Fine and myself, and I had learned to regard him as a great man and I have no smallest doubt that history will recognise his greatness. He had the rare gift of constructive imagination and could suggest original lines of development. On the other hand, he had faults of temper and temperament and, both in Princeton and in Washington, he made tactical blunders. At least, his most closely attached friends so regarded and lamented them. One of these tactical errors he committed at the outset and it returned to plague him long afterward. At the alumni luncheon of that Commencement, speeches were made by the retiring and incoming Presidents and Mr. Wilson completely ignored Dr. Patton and he did the same thing at his inauguration in October, at the great dinner which the New York alumni gave to Dr. Patton and himself and, strangest of all, at the installation of Dr. Patton as President of the Seminary. As there were thus four public addresses in which this omission was practised, there could be no question of oversight or forgetfulness.

This ignoring of his predecessor by the new President caused much unfavourable criticism as a display of bad manners. It was not that, but the exaggerated expression of an honesty that was so straight that it leaned backward. Mr. Wilson had so bitterly criticised Dr. Patton's administration that any eulogy from him would have been barefaced hypocrisy. This was most unfortunate and unnecessary, for there was a great deal of praise which he might have given to Dr. Patton with perfect candour and sincerity. When President Hibben was inaugurated in 1912, this regrettable precedent was followed and Mr. Wilson was ignored in a way that greatly wounded his friends. One of these expressed to me his indignation over the way in which all mention of Wilson's name had been studiously avoided. I agreed with him, but said: "You must admit that Wilson brought this on himself." The friend was made very angry by this and said: "I don't agree with you." To this I rejoined: "Don't you remember that, at his inauguration, Wilson ignored Patton in precisely the same way?" "Oh!" he said, "I had forgotten that."

As soon as the election of the new President was announced, I called on him and poured out a stream of proposals for reform and reconstruction, not a single item of which met with his approval. To say that I was disappointed is an understatement, but he subsequently changed his mind and adopted nearly all of the suggestions, for the widely held notion that he was inflexibly obstinate was altogether erroneous. I had several such experiences with him and it was these, I fancy, that made him say to Dr. Keen: "Professor Scott has a very inconvenient habit of being right." With the opening of the new administration in the fall of 1902 there came a wonderful revivification and clearing of the air, and the stimulating effect of Mr. Wilson's personality and leadership exceed my powers of description.

A radical revision of the curriculum occupied a large committee for some months and, though it had certain obvious defects, it was a great improvement, as was also the organisation of the college into departments. In the discussions of those changes some of the most difficult sides of the new President's character became manifest. When opposed, or annoyed, he grew arrogant and sarcastic and he occasionally spoke to me in a way that I would not have tolerated from any one else, but he was always open to conviction and would change his mind when good reason was shown him. On the other hand, the large patience of the statesman, which he learned in Washington, he did not always exhibit in Princeton and his impatience for prompt action and immediate

results was, in my judgement, the principal obstacle to the success of his policies.

While President Wilson had his share of human nature, he was far from being the cold, unemotional egoist which his enemies, academic and personal, have supposed him to be. He had a very inaccurate memory in matters of current business and was accused of untruthfulness, when he simply forgot some arrangement. Knowing that he could not trust his memory, he wished to have all business transactions in writing, so far as that was possible. Another habit, which led some of his enemies to call him disingenuous, was his constant endeavour to keep a debated subject free from personal considerations and he would explain his actions by reasons which, though perfectly true, were not always the principal ones, if these were personal. At the height of the controversies which embittered his last years at Princeton, he said to me: "We don't want to vote Soandso down," mentioning one of his principal opponents and, in fact, he never wished to vote any one down, but always, if possible, to find some common meeting ground by discussion.

When everything is said that can fairly be alleged against President Wilson of Princeton, it is all as nothing in comparison with his great services. In my judgement, his most important and lasting achievement was the complete revolution in atmosphere and spirit which he brought about and which generated an enthusiasm in Faculty and students alike which raised the whole tone of the place. I fancy that it was much like the change which occurred when Dr. McCosh succeeded Dr. McLean, only greater in amount. Mr. Wilson's enemies, who are fond of declaring that his administration at Princeton was a failure, ignore this revolution, which only those who were on the ground can appreciate. The bitterest of those enemies were, for the most part, people who would not be sensitive to so intangible a change.

After my return from South America, I began the Patagonian work in earnest, both as editor and publisher, on the one hand, and as a contributor, on the other. A great lot of drudgery was involved in this work, photographing, proof-reading, indexing, etc., and though I sometimes wearied of the mechanical labour, such weariness was short-lived and, on the whole, I enjoyed the work intensely. It was my duty to see that the volumes should, in all respects, be equal to the beautiful results which Werner and Winter were giving us for the plates and the New Era Company for the text. This labour was made all the more necessary, as few of the contributors were good proof-readers who could

be relied upon to eliminate all printer's errors. I felt compelled to read every line of all the volumes, not only once, but several times. Probably, I am the only man of whom that is, or ever will be, true. Volume V was entirely written by me and it took me almost exactly two years to write it and put it through the press. I contributed also the greater part of Volumes VI and VII.

In September 1903 I had to run over to Frankfort and straighten out a snarl into which the lithographers had fallen and which it did not seem possible to clear away by correspondence. Accordingly, my Wife and I started off on a second wedding journey, which we enjoyed to an incredible degree and much more than we had the first. We sailed from Boston to Liverpool and spent several days in London, to arrange for the plates of the Botany volumes, which Dr. Macloskie wished to have made in England, rather than in Germany. Professor Hubrecht and his wife had invited us to visit them in Utrecht and we, therefore, crossed the North Sea from Harwich to the Hook of Holland; I think it was on the S. S. *Dresden*, which was wrecked the following winter with great loss of life, on the Dutch coast.

That crossing afforded us one of the rarest and most magnificent spectacles that it was ever our good fortune to witness. The wind was blowing a hurricane from the west and its steady roar overhead was like a barrage of heavy guns; so tremendous was its violence that our friends in Utrecht lay awake all night, trembling for our safety and thinking that no ship could live through such a storm. The sea was lashed to such wild fury as I have rarely seen, but the wonderful and exceptional part of it all was the full moon shining out of a cloudless sky and turning that frantic sea to molten silver. As the wind and sea were following, the steamer drove through the waves with surprisingly little roll or pitch. It never occurred to us that we might be in danger and we had a comfortable night's sleep.

Our hospitable friends took us to Amsterdam and The Hague and saw us off by a night train for Cologne and Frankfort. The secretary of legation at The Hague was then Mr. John W. Garrett (Princeton '95) afterward the American Ambassador to Italy. Mr. Garrett was the principal supporter of the expeditions to Patagonia and was particularly interested in the birds of that region. I therefore called at the legation, to show him the coloured plates of birds, of which I had just received proofs from the lithographers. The dispute as to the boundary between Canada and Alaska was then under arbitration in London and I was a little apprehensive as to the outcome. Not that I cared about the

Portland Canal, but I feared a time of recrimination, should the award go against us. Mr. Garrett told me not to worry, for the English arbitrator was going to side with us, as proved to be true.

A very brief personal conference sufficed to remove all the difficulties in which the lithographers had been enmeshed; we spent the night at Frankfort, in order to hear Mozart's *Magic Flute*, which was delightfully rendered, reaching Heidelberg the next day. There we had a heartwarming welcome from our old friends. At Stuttgart, we encountered Eberhard Fraas, who had been a guest in my house two years before; his satirical description of the organisation of society in the Würtemberg capital was most amusing and sounded like Versailles in the eighteenth century.

At Munich, we could see only Schlosser, who was in great distress over the accident that had just befallen von Zittel. The famous palaeontologist had been knocked down in the street and received injuries from which he afterwards died. At the time of our visit, however, his life was not despaired of. We took the midnight express for Rome. At Rome we put up at a pension kept by a very interesting and cultivated Frenchwoman, to whom we had been recommended. She was extremely kind to us and especially so to me, for I was miserable with a heavy cold and she coddled me, as though I were her son.

After an all too short stay in Naples, we sailed for Boston by the Dominion liner *Vancouver* and had a very uncomfortably crowded passage. After a stop at Ponta Delgada, in the Azores, we landed at Boston, having had a most memorable and delightful tour.

During my absence, my lectures had been taken by Mr. Gilbert van Ingen, who had succeeded Dr. Ortmann when the latter went to the Carnegie Museum in Pittsburgh. We had not yet discovered it, but van Ingen's coming opened a new epoch in the Department of Geology, for he was a most stimulating and successful teacher, especially in the laboratory and the field, where his students became very much attached to him. He trained many promising young geologists in a way that I had never been able to do.

In 1903, I was elected one of the vice-presidents of the American Philosophical Society, of which I had been a member since 1886.

In July 1904, I attended the International Zoölogical Congress at Bern, going by way of Heidelberg. The Congress, so far as I can remember, was a rather routine affair, with nothing about it of outstanding importance. From Bern, I went directly to Cambridge for the meeting of the British Association and lived in Magdalen College, as the

guest of Professor Alfred Newton, where I also found Sir Archibald Geikie as a member of the party. Mr. Balfour, as he was then and for long afterward, was not only the Prime Minister of England but also the President of the British Association for the year. The presidential address is always an affair of ceremony and is delivered publicly in the evening and in some large hall. An extensive platform is erected for the speaker and on this are rows of seats for foreign and distinguished guests. I was in the second row of seats on the platform and in the middle line, just behind Professor George Darwin. Mr. Balfour came in quietly, with no decorations and in ordinary evening dress, like any private gentleman in appearance. He came up on the platform and sat down and then, turning around, put his hand on Darwin's knee and said: "Hello, George! how are you?" The German guests, of whom a considerable number were present, were scandalised by such undignified ways and gave free vent to their lacerated feelings.

While in Cambridge, I attended the meetings of the Zoölogical Section almost entirely, as the papers and discussions in that section were much the liveliest and most interesting. Mendel's results, forgotten since 1866, had been rediscovered by de Vries and other botanists in 1900. This rediscovery aroused the most intense activity among zoölogists and botanists alike and led to the development of the new science of genetics. In England, the most prominent leader in the new movement was William Bateson, who kept the zoölogical section well stirred up, for, like many other biologists, he believed that the key to the mystery of evolution was to be found in the study of Mendelian inheritance. So bitter did some of the discussions become that old friendships were irretrievably broken. As for myself, I had witnessed the rise, culmination and decline of so many promising theories that my attitude was sceptical. Uncle Jack Robinson's formula, "Mebbe it is, but I don't believe it," is often very applicable.

Ten years later, Bateson was president of the Association for the Australian meeting of 1914, and his address on that occasion was a cry of despair, as to ever finding the solution of the evolutionary mystery. This address and, still more, the lecture which he delivered in Toronto in 1923, was really the occasion of the obscurantist, reactionary movement against the theory of Evolution, which was so vehemently championed by Mr. Bryan and culminated in the Scopes trial at Dayton, Tenn. Bateson afterwards cried *"peccavi"* and admitted that his unguarded statements had been completely misunderstood as abandoning the doctrine of Evolution, which he did not do at all. Though

having pretty well lost hope of *explaining* Evolution, he did not, in the least, doubt the truth of the theory as a fact. To this day, I encounter people who triumphantly bring up Bateson's addresses as a proof that belief in the theory is dying out among zoölogists.

I was much grieved by the death of J. B. Hatcher, who had been closely associated with me for seven years and was a unique figure in American palaeontology. One of the greatest of collectors, whose original and ingenious methods raised the obtaining of fossil vertebrates to a fine art, he was much more than that and was already one of the foremost of our palaeontologists. He was a thoroughly educated man, a graduate of Yale and gifted with a remarkable English style. His *Narrative and Geography,* which form Volume I of the Patagonian Reports, are so admirably written, that President Bowman has urged me to get out a cheap edition of the *Narrative*. As Dr. Dall said, in reviewing this work for *Science,* it "is far too good to be buried in a quarto." It has been compared, for readibility and charm, to Darwin's famous *Voyage of a Naturalist*.

Dr. W. J. Sinclair, who had been a pupil of Merriam's at the University of California, was appointed to the Class of 1877 Fellowship in the autumn of 1904 and has remained with us ever since. It is impossible to do justice to the importance of his work in vertebrate palaeontology; he had many successful collecting trips, accomplished wonders in the museum and established the "Scott Fund," which ensures the continuance of the work with which Princeton has been so long identified. To me he ever was a loyal and devoted friend until his early death in 1935.

In the spring of 1905 the E. K. Kane gold medal of the Geographical Society of Philadelphia was conferred on me, which, while it pleased me greatly as a recognition of Princeton's work, gave me little personal gratification, for I felt that it would have been more suitably given to Hatcher or Peterson. The award was publicly bestowed at a meeting of the Geographical Society in Philadelphia and, in returning thanks for the signal honour, I told an anecdote which I had read a short time before. It was said of King George IV that, near the end of his life, he became convinced that he had, in person, commanded the British troops at Waterloo. I feared that, if people kept on assuring me that I had travelled extensively in Patagonia, I should finally come to believe it myself.

Mr. Wilson had announced his plan for the preceptorial system, an announcement which was enthusiastically received by Princetonians and by the public at large. The Trustees adopted the plan and voted that it

should be put in operation in September 1905, and immediately began scouring the country for promising young men, as some sixty new appointments were to be made. I was, at last, authorized to offer a position to Professor Smyth, of Hamilton College, as I had long desired to do. To Smyth and van Ingen, far more than to me, has been due the very gratifying growth and development of the Geological Department and, especially of the graduate work. Most of the advanced students in geology have come in order to work under Smyth. He sent out a stream of well equipped young men, who have gained high rank in their profession. His own frailty of health was a tragedy, as it prevented his carrying out the investigations which he desired and was so well fitted to make.

While in Cambridge the summer before, I had heard of the proposed meeting of the British Association in South Africa in 1905, but had forgotten it. I was therefore equally pleased and surprised by an invitation to join the "official party," having all my expenses paid, except the round voyage between America and England. This most liberal offer made it almost as cheap to join the great excursion as to stay at home, and I thankfully accepted it. At the Commencement of that year, I met a pleasant, well mannered young German, who was evidently a man of wealth and with whom I had considerable conversation. He interested me greatly as a living demonstration of the revolutionary change that had come over the Germany that I knew. He told me that his father and brother were in a syndicate with Prince Hohenlohe for building sanatoria in Madeira and that one of them had resigned a professorship in the University of Berlin to go into this business. In my day, such a step as a professor's turning Kaufmann would have been inconceivable. He also very kindly offered to have instructions sent to their people in Madeira to look after me. I supposed that this was merely a polite gesture and thought no more of it, but, when I landed on the island, feeling very wretched and ill, I found that the instructions had been actually sent and they were very serviceable to me.

CHAPTER TWENTY-FIVE

SOUTH AFRICAN EXCURSION

OF all the sea-voyages that I have made, the only one which I wished to have prolonged was that on the Red Star liner *Finnland,* which sailed from New York on July 8, 1905. The reason for this unprecedented phenomenon was to be found in the very unusual character of the passenger list. Such a proportion of agreeable and cultivated people, I have rarely encountered at sea. When, after nine days of pleasant weather, I landed at Dover and saw the ship start off again for Antwerp, I was really sorry to leave her. I crossed directly to Paris, where there was some material in the museum, which I wished to see because of its bearing on my South American work. Thence I went to Stuttgart, to see my publisher and, incidentally, to inspect the remarkable treasures of fossils which Fraas had been collecting in Egypt. Heidelberg, of course, and Frankfort, to see the lithographers, were taken on the way to England.

In London, I had to attend to various items of business connected with the Patagonian Reports and, especially, to consult with R. Bowdler Sharpe, chief ornithologist of the British Museum. After we had finished our discussions, Dr. Sharpe invited me to lunch with his daughter and himself at a nearby restaurant. The conversation during and after that meal has remained fixed in my memory, for it was a strange mixture of gaiety and bitterness of heart. He let me see plainly how deeply he was pained by his failure of election to the Royal Society, membership in which is the goal of ambition to every scientific man in Britain. He said that the limited number of zoölogists who could be elected in any one year was always taken up by young men from the universities. One professor would say: "I've got a young man who can cut a leech into three pieces, we must elect him." Another would say: "My man cut the leech into four pieces; we must take him without fail," and so the contempt of the systematist for the microscopist and

of the latter for the "species maker," is an old story and Sharpe's position in the debate was made clear.

On July 29, I sailed from Southampton for Cape Town by the Union-Castle liner *Saxon,* with a large proportion of the British Association, including nearly the whole of the "official party." This body, the existence of which gave occasion for great heartburnings, consisted of the officers of the Association, with their families, and the specially invited foreign guests. The members of the official party were given free passes over all South African railways, unlimited for the term of our stay, were entertained in private houses, thus eliminating all hotel expenses, and, for the foreigners, the steamer fare from England to South Africa and return was also paid. For the common, unofficial herd, half fares on the railroads and reduced rates at the hotels were provided; in some instances, as at Johannesburg, all the visitors were privately entertained.

The voyage, which lasted for seventeen days, was, in many respects, different from any other that I ever made and, not least so, in the character of the passenger list. Except for the return voyage, I have never been in a ship that carried so many eminent men, though these were not always the pleasantest of travelling companions. There were but three Americans beside myself, Professors W. M. Davis, of Harvard; Carhart, University of Michigan; and Douglas Campbell of Leland Stanford. Ernest Brown, with whom I had long been associated in the Philosophical Society, was an Englishman, a Cambridge man and a professor in Haverford College. Since that date, he has gone to Yale, become a naturalised American and a member of the National Academy of Sciences. George Darwin, professor of astronomy at Cambridge, was the President of the British Association that year and Brown, who was an intimate friend of his, acted as his assistant throughout the excursion. There was one Frenchman, an ill-tempered personage, who was not popular and often made himself ridiculous with loudly expressed demands and pretensions. A few Germans and one Swede were the only other foreigners that I knew of.

On the second day out, I had a violent attack of ptomaine poisoning and, when I landed at Madeira, I was still hardly able to walk and, as I toiled painfully up the steps of the pier, an obvious German came forward and very politely asked if I were Professor Scott. When I admitted the fact, he said that he had been instructed by the Hohenlohe syndicate to look out for me. He took me halfway up the mountain to a charming little hotel, which had a wonderful outlook over the Bay of Funchal

and the Atlantic. There he gave me a delicious breakfast, which seemed quite marvellous after steamer fare. Because of my weakened condition, all this was a godsend and was gratefully appreciated. I descended to Funchal by one of the curious wicker sleds, such as I never saw elsewhere, which coast down over the glassy lava pebbles like a toboggan over the snow. My young German acquaintance of the Princeton Commencement had been better than his word.

On the British liners which make long voyages it is customary, if there are many passengers, to organise an elaborate programme of sports, mostly farcical. On the *Saxon,* each passenger was assessed a guinea for prizes, which were bought from the barber and were not, therefore, particularly desirable. These sports went on day after day and were often very amusing to watch and they helped pass away the weary time, for we made no stop after leaving Madeira. Much more worth-while was the series of lectures by eminent scholars and men of science, which were given in the saloon or the ladies' cabin. I especially remember a charming lecture on "Dictionaries," given by Dr. Murray, then editor of the Oxford Dictionary, which was full of interesting information and sparkling with humour. Near the end of the voyage there was a solemn ceremony in the saloon, after dinner, at which Mrs. Darwin presented the prizes to the winners in the various sports. I fancy these unlucky people secretly heaved their prizes overboard, or forced them on the stewards, for we saw the gruesome objects no more.

Though the members of the Association took up most of the first cabin, there were a few other passengers also. One evening, in the smoking room, I fell into conversation with a young German, who told me that he was a shopkeeper in Cape Town and gave me a glimpse of the tyranny exercised by the shipping ring there, made up of the British and German lines. For a time, there had been an independent line, which offered somewhat lower rates, and he had had the temerity to make use of it. When that line withdrew from the competition, the young shopkeeper was disciplined by not being allowed to ship his goods by the relatively fast mail boats, which made a difference of several days, when he tried to get something, in a hurry, from England or Germany.

On Tuesday morning, August 19, I awoke to find the ship motionless and, when I reached the deck, she was tied up to the quay and alongside stood the train, locally known as the "train de lucks," which, once a week, on arrival of the mail, runs up to Johannesburg, a distance of about a thousand miles. Before me rose the majestic mass of Table

Mountain, wonderfully impressive for its height of only thirty-five hundred feet, especially when the "tablecloth" of cloud caps the mountain and pours down over its side like a cataract. I was charmed to see, for the first time, penguins swimming and diving about the ship; I had seen them in a glass tank at the London Zoo, but never before in their wild state. There is a great penguin rookery on Robben Island, not far from Cape Town, where the birds are carefully protected.

The official party was distributed among the hospitable families which were to entertain its members. These families were all in the suburbs, for "everybody as is anybody" has a suburban home and uses the excellent train service in going to and from his office. The city is very English in appearance and has almost completely lost its original Dutch character, but the English and people of British descent leave the town to business and government and to the East Indian, Boer and native elements of the population. There is a fine street in Cape Town, called the Avenue, which is lined with large oak trees and these, I was interested to see, were putting out new leaves, though it was midwinter. The winter is like that of Buenos Aires, almost always comfortable out of doors, desperately cold in the unheated houses. There was one snowstorm, such as I never saw in Argentina, but the snow melted as fast as it fell. The Botanical Society had arranged, for our benefit, an exhibition of the wild plants which were in bloom at the time of our visit and the display of brilliant flowers was quite wonderful.

Together with Professor A. P. Coleman, of Toronto, I was the guest, in the suburb of Maitland, of Dr. Hutcheon, Chief Veterinarian of Cape Colony. Dr. Hutcheon was not only excessively kind and hospitable to us, but also an uncommonly interesting talker. He told me much concerning the stock diseases which had swept away the flocks and herds of both colonials and natives. During the Boer War, the British Army Transport had brought together draught cattle from all over Africa and had thus assembled a choice assortment of bovine diseases—Texas fever, rinderpest, foot-and-mouth disease, red-water fever, etc. Very often the exhausted ox-teams were turned loose, to shift for themselves and infect the local herds. Even the wild game was infected and so decimated that I saw almost no wild animals in a country that once was famous for its herds of antelope, zebra and other game. This has always seemed to me to suggest one factor in the extinction of mammals in the past, the onset, namely, of new infectious diseases.

Newly imported horses were liable to an unclassified disease, which was simply called "horse sickness," and from which most of them died.

A horse which had had the disease and recovered was immune thereafter and was said to be "salted" and commanded many times the price of an "unsalted" animal. Dr. Hutcheon said he thought the disease was a form of equine malaria, but there are obvious objections to this view. In the Karroo Desert, away from the railroads, freighting was done entirely by means of donkeys, of which I saw teams of 24 and 36 head, hauling great platform wagons. No doubt, this was a temporary arrangement, occasioned by the scarcity of draught animals.

From Maitland, we went in and out by train, paying the local fares; when the lists had been verified, the members of the official party received blanket passes, good on every line and every train throughout South Africa. This was a very handsome gift to us from the colonial governments, to which the railways belonged. Some of the visitors, however, were not satisfied; one professor, said to be a man of wealth, put in a claim against the railroad administration for fourpence, paid in suburban fares. He argued that the delay in issuing his pass had occasioned the expenditure and he wanted his money back. The administration refunded the fourpence and avenged itself by telling the story, which was repeated, with Homeric laughter, all over South Africa. Indeed, I have often wished for a full and unvarnished opinion from South Africa upon the British Association, as I had from the British Association regarding South Africa. Incomplete as my knowledge was, it contained some amazing items.

That the extraordinary performances which I myself witnessed, or heard of from unimpeachable sources, may not be misunderstood, it should be explained that the British Association is made up of all sorts and conditions of men and women, and that when a meeting is in progress any British subject, not obviously disreputable, may walk in from the street and become a member by paying a guinea. On the assumption that all who care to join will be decent and orderly, the statutes contain no provision for expelling a member. Before our journey was over, the lack of such a provision was found to be an unfortunate oversight.

The formal meetings began without delay; the presidential address was in two parts, one of which was delivered in Cape Town, the other in Johannesburg. The first of these was given in a huge barn of a place, as cold as Greenland, and, in my capacity of "distinguished foreigner" (there weren't many of us) I had to sit on the stage, with a torrent of cold air pouring down the back of my neck; it was ghastly. Next came a garden party, given by the Governor, Sir Walter Hely-Hutchinson,

whom I was anxious to meet. When he was Governor of Natal, he had pluckily outfaced public opinion and had refused to receive Dr. Jameson, when that worthy had been released from the Boer prison and was on his way home to England for trial. The British colonials were making a hero of him and, at the time of our visit, he was the Prime Minister of Cape Colony. I was astonished at the feeling which eminent men of science expressed to me concerning Jameson's piratical raid; they seemed to think that the only fault which could be found with that enterprise was that it had failed!

I entered Government House with some trepidation, because I had not brought with me the silk hat and frock coat, which I was told were indispensable, and yet I desired to see the performance and the setting of a function that plays so large a part in English novels. Purposely, therefore I went rather late and found the Governor almost alone in the reception room. On shaking hands with him, I remarked: "I hope, Sir Walter, you will pardon my coming here without a wedding garment," to which he heartily responded: "Of course I will; you're a traveller. I'm the unlucky beggar that has to wear the wedding garment." Government House, or, at least, the state apartments which were thrown open for the occasion, were expensively furnished and decorated, but in the stodgy, florid style that we call "early Pullman." The garden was not very large and, in its winter condition, was uninteresting, but a stay in the open air was very pleasant.

The sectional meetings were thinly attended and I did not go to many, but saw as much as possible of Cape Town and its surroundings. The South African Museum contained much that was interesting, especially from the point of view of similarities with Patagonia. I took one of the many "finest drives in the world" going out to the coast, where a series of bold, rocky headlands, called the "Twelve Apostles," fringe the shore, and granite reefs, over which the surf breaks furiously, run far out to sea, making a wonderful panorama. At Naples, in 1903, old Dr. Dohrn, head of the Zoölogical Station, urged me to take my Wife to Amalfi and thence to Sorrento, the "finest drive in the world," and the road around the Bay of Rio Janeiro is also the "finest in the world." And so they are, in truth; each, in its own different way, is incomparably fine.

Most of the Association went to Durban by sea and thence to Johannesburg by rail, while a party of fifteen, under the guidance of Mr. A. W. Rogers, Geologist of Cape Colony, took a geological trip through the Karroo Desert. I went with this party, much to my pleasure

and profit, but had, thereby to forego the opportunity of seeing anything of Natal. Before leaving Cape Town, I received an invitation from the Governor of Natal to be his guest while the Association was at Pietermaritzburg. This was embarrassing, for I felt perfectly sure that the invitation was not meant for me, though name and initials were correctly given on the envelope. It was bad enough to decline an invitation not meant for me, but it would have been far worse to accept it. Professor Darwin afterwards told me that my intuition had been correct and that the invitation had been meant for "another man of the same name," but with different initials.

I think it was while they were visiting the Governor of Natal that the Darwins had a delightful adventure. One evening, after dinner, a commotion was heard in the servants' hall, loud, angry voices and fierce disputation. Much scandalised, the hostess rang the bell and, when the frightened parlour maid appeared, demanded to know the meaning of all that noise. The maid answered: "Please, ma'am, the butler says as 'ow we was all descended from Darwin, but cook says she don't 'old with no such notions." How gratified Mr. Bryan would have been, could he have known that he and cook agreed.

The Karroo party started out by rail, spending the first night at de Doorns and going on the next day to Matjesfontein. Much of our travelling was by Cape carts, high, two-wheeled, gig-like vehicles, which were not very comfortable, but "they got there, just the same." The special object of the excursion was to study the great thickness of rock called the Dwyka Conglomerate and make up our minds whether the Dwyka were a glacial moraine, as had been reported. In the party were some of the foremost glacialists of the world, such as Penck of Berlin, Coleman of Toronto, and Davis of Harvard, whose verdict might be relied upon as competent and trustworthy. They and the others of us who, though not glacial specialists, knew something of geology, were all fully convinced that the Dwyka was of glacial origin. Professor Sjögren, of Stockholm, who was in the party, surprised me by saying that most Continental geologists refused to admit more than one glacial period, shutting their eyes to the evidence.

During most of the Karroo excursion we lived in a sleeping car but, for the week-end, we were all entertained in the hotel at Matjesfontein, an oasis in the desert, which had been created, at vast expense, by a rich brandy-distiller, a member of the Cape Colony Parliament. After dinner, one evening, I heard him deliver a tirade on the British officer, as he displayed himself in the Boer War. Everywhere I went, I found similar

sentiments—warm liking and admiration for "Tommy Atkins," the private soldier, dislike and alleged contempt for his officer. I say alleged, for I imagine that the feeling was largely the result of arrogance on the part of the officers, just as it was in our own Colonial period. Loyalty and devoted attachment to the Empire, coupled, paradoxically enough, with personal dislike of the English, I have found very generally in the British colonies, even among people of English birth or descent. At Kimberley, my host said to me: "I applied for you." "Did you?" said I in some surprise, "what did you know about me?" "Nothing, except that you were not English." Yet, he was an Englishman himself, but had been wearied by the patronising and condescending airs of the English tourists.

While I am on this topic, I may as well finish the record of my observations, without regard to chronological order. At Kimberley, there was much complaint as to the way in which the members of the Association, especially the women, were treating their hosts. One lady, for example, criticised severely everything about the household in which she was entertained and wound up by expressing her astonishment at the backward state of housekeeping in Cape Colony. In this country most of us have had our experiences of the tactful little ways of English visitors and have learned to be amused by them, but in the colonies such things rankle. I once remarked to a scientific friend in London: "Why do you speak of the Colonials in a slightly contemptuous fashion? You seem to regard them as people who failed at home." "What else are they?" was his reply, which filled me with astonishment.

In the relatively large city of Johannesburg all members of the Association, official and unofficial alike, were entertained in private houses. I heard some of the most incredible tales concerning the behaviour of these visitors, many of whom acted as though they were in a hotel, ordering their meals and complaining of their accommodations. To understand this, however, it is necessary to remember that, as I have already mentioned, the Association is a very "mixed lot." A corresponding lot of Americans would have behaved no better. This mitigation cannot be pleaded for the Frenchman, who seemed to think that the slightest want of consideration toward himself was an insult to *la grande nation*. I shall not be so unkind as to repeat the stories I heard about him; I did not witness them. It did not require these warning examples to make me resolve never to complain, never to ask for anything, and to show myself appreciative of everything that was done for me. All South Africa had taken the utmost pains and had spared no

trouble or expense to make our visit enjoyable and I tried always to show that I appreciated this fact and was heartily grateful for it.

Most of the Karroo party went over into Natal, to join Mollengraf's excursion, but I went directly to Johannesburg, as I was unutterably weary of the train and yearned for a real bed. The night before reaching my destination I had, as travelling companion, a young man from Belfast. He was a missionary in Basutoland, a native reservation, not open to white settlement. His talk was extraordinarily interesting and told me much of a part of South Africa that is little known to the outside world. As was inevitable in those days, our talk drifted to the war and he told me a tale of General Buller, which, if not true, was very cleverly invented. Of course, I am unable to vouch for the truth of the story, but I cannot doubt its substantial accuracy. Buller's relatively large army was attempting to relieve Ladysmith, which had been besieged by the Boers since the beginning of the war. The British had been held up for weeks by the Boer trenches along the Tugela River and had lost heavily in frontal attacks, which gained no ground.

An Englishman, who lived on the Tugela and knew the country well, sought an interview with a staff officer and pointed out to him a line of hills well to the eastward of the position, saying: "Those hills are on the south side of the river, but they enfilade the Boer trenches and, if you take the hills, as you can easily do, you will turn the flank of the Boers and they will retreat immediately." The staff officer, as in duty bound, reported the conversation to his chief, whose only reply was: "What the hell does he know about it?" After vainly butting his head against the Boer lines for some time longer, Buller finally took the eastern hills and the Boers evacuated the position at once. Is not this a nineteenth century version of General Braddock? Winston Churchill's account, in his *London to Ladysmith,* is confirmatory of these facts, though, of course, he has nothing to say of the English settler.

I heard much scandal about the army administration, turning chiefly upon backstairs and petticoat government and royal interference. For example, I heard of a hospital nurse, in war time, who gave no end of trouble and whose conduct was frankly disreputable. When I asked, "Why didn't you dismiss her and send her home?" I got the reply, "Oh! we couldn't do that, she was the protégée of Princess Somebody"; I forget the name, but that is immaterial. The stories I heard may all have been fakes, but they are significant of the feeling which the British army created against itself, always excepting the private soldiers, of whom I heard nothing but praise. In a letter from Johannesburg I wrote: "Since

dinner, we have been talking in the drawing room, our host giving us the most instructive and interesting account of affairs here, political, mining, labour, etc. I wish it were not so late, that I might make a record of his talk. I will only mention the fundamental point of what he said, namely, that every one here is profoundly dissatisfied with the way in which this colony is ruled from London and that responsible self-government must soon be granted, or revolution will follow."

As everywhere else in South Africa, in Johannesburg I heard the severest criticism of British military rule in the Transvaal and some of the tales told me were quite incredible examples of arrogance and stupidity, for which the English language has no adequate term. The German word *dummdreist* expresses it fairly well. Shortly after the end of the war, Kipling published, in *McClure's Magazine,* a story which was a caustic arraignment of a certain type of young officer, an arraignment which was ample confirmation of all that I heard in South Africa. This story was announced as the first of a series, but it was also the last and I have often wondered what it was that made Kipling hold his hand.

On arrival at Pretoria, I shared a cab with a young woman who, born at Cape Town of English parents, had joined the British Association excursion as enabling her to fulfill her long cherished wish to see Rhodesia and the Victoria Falls. She was of unusual poise and intelligence and we all liked and admired her. As we drove through the town and noticed the British flag flying over the buildings that had housed the government of the extinct South African Republic, I said: "It must grind the Boers frightfully to see that flag up there"; to which she replied: "Of course it does and the worst of it is, that these English people can't, in the least, comprehend why it should." She put her finger there on the weak spot in British colonial administration, the general success of which has been the envy and admiration of the world.

On a Union Pacific train, I once met a German merchant who was settled in Calcutta and was most enthusiastic over the British rule in India, which he declared to be the best-governed country on earth. An American, whose business took him pretty much all over the globe and with whom I crossed the Atlantic, remarked to me, with much truth, that he regarded the British Empire as the greatest instrument of justice ever devised. If people are well and justly governed, the English think it is absurd of them to want anything more, but Ireland, Egypt and India show that sympathetic insight is no less essential. Sir Henry Campbell-Bannerman did a very wise and statesmanlike thing, when

he, in the face of violent opposition and prophecies of disaster, granted self-government to his unreconciled enemies in South Africa and thereby averted the revolution which seemed imminent when I was in the Transvaal. What fruit this generous policy bore in the World War, needs no restatement here, for it is known and read of all men.

When, in the Boer War, Pretoria surrendered without a blow, the world was greatly surprised, for it was known that the city had been elaborately fortified, with a ring of works on the hill tops, completely enclosing the capital. Immense sums of money were expended by German military engineers in these works, but they were not of the least real value. We visited one of these forts which, we were told, was essentially like all the others, and found it a barefaced swindle. It was in charge of a corporal and two men, who exhibited it to us. I said: "Corporal, where are your gun emplacements?" "There aren't any, Sir." "So far as I can see, you couldn't even set up a field-piece in here." "No, Sir, there is no place for even that." The forts were never armed, could not have been, in fact, and were of no more use than so many stone piles.

At Johannesburg we had a very interesting time in studying the gold industry of the Rand, for the gigantic scale of which I was not at all prepared and in endless talks with Mr. Catlin, an American engineer, who was my kind host at Germiston and had been through all the troubled times that led up to the war, I learned incomparably more than I could ever have discovered for myself. We also saw the newly discovered diamond mines near Pretoria, which were geologically more instructive than the great pits at Kimberley, our next destination. There we saw not only the operations of diamond mining and sorting but also the remarkable collection of diamonds at the offices of the De Beers Company. As I had lost a great deal of sleep, I tried to make up some of it at Kimberley, for the pace set by the indefatigable, white-headed old fellows of the Association was too hot for me.

From Kimberley, we travelled north through Bechuana Land into Southern Rhodesia, a very interesting experiment, for though in the Tropics its altitude is such that the climate is moderate and white men can do out-of-door manual labour, without the costly apparatus of sanitation which was indispensable in building the Panama Canal. Buluwayo, like other South African towns, we found to be solidly built of brick and stone; it did not have the shabby look which frame construction and unpainted buildings give to our newer towns. The high

cost of timber throughout the southern hemisphere is not without its compensations, as the cheapness of it has been no unmixed blessing to us.

From Buluwayo, after an interesting trip to the Matoppos Hills and Cecil Rhodes' grave, we started on the ever memorable journey to the Victoria Falls, one of the great spectacles of the world. This excursion we owed to the courtesy of Sir Charles Metcalf, Chairman of the British South African Company, who provided five special trains. We had ample time to study the Falls from every point of view and I secured an excellent series of photographs. I shall not attempt any description of the indescribable, but merely express my extreme gratification that it was my privilege to see and thoroughly enjoy that wonderful place. The country about the Falls, in the dry season, seemed very desolate, the open, scrubby forest looking like the wintry woods of temperate climates, with nothing to suggest the tropics. There was, however, a band of forest, especially in the ravine called Palm Kloof, which was perpetually drenched by the spray of the great cataract, and here there was a luxuriant growth of palms, tree ferns and other tropical plants. The demonstration of the effect produced by a little water was quite astonishing.

On returning to Buluwayo, the Association divided into two groups, one returning to Cape Town and sailing to England from there, the other proceeding to Beira, in Portuguese East Africa, where a steamer was waiting to take us to Southampton by the Suez Canal and the Mediterranean. At the Rhodesian towns of Salisbury and Umtali, the ladies had prepared cold luncheons for us, a delicious and welcome change from dining-car and hotel fare. The voyage up the east coast of Africa, though very interesting, was most uncomfortable. In marked contrast to the west coast, the weather was very hot, the ship crowded and the table wonderfully bad. The ship had been many weeks out from England and, to a large extent, her perishable supplies had perished, or were at the point of doing so. The stale and, sometimes, mouldy food was most unappetising. Even before we left Buluwayo, the strain of continual travelling was beginning to tell on the older members of the Association, many of whom fell ill and several died. Those who kept in good health were tired out and welcomed the restful life of shipboard.

I should like to bear my testimony to the admirable way in which this whole great undertaking was managed. I do not know who was responsible for the arrangements; no doubt a great many people in the various towns, coöperating with the British and South African Asso-

ciations, which, for the purposes of that meeting, were merged in one. Almost all our journeys were made by special trains, which were always ready, when needed, and we were never kept waiting for connections. When we arrived at a new town, the members of the official party were met by their hosts and immediately taken to the houses assigned to them. I don't doubt that the unofficial party was well taken care of in the hotels, but I did not meet the unofficial members. I learned indirectly, however, that there was much grumbling and dissatisfaction among them, chiefly due to envy and hatred of the guests whose expenses were paid. I can only say that all those visitors whom I saw received every possible care and attention and that all the arrangements of transportation and supply worked without a hitch.

On a geological excursion which I made to the Bushveldt, north of Pretoria, one of our hosts said to me, as I was bidding him good-bye: "Don't run us down, when you get home." I replied: "I should be the most ungrateful of mankind, if I were to run you down." "That isn't what I mean," he said. "Don't disparage the country and speak ill of our outlook for the future." That was an altogether different matter and I could only answer evasively, for the long future of South Africa seemed very far from rosy to me. The mineral wealth of the country is incredible and since the time of my visit, many new and wonderful ore deposits have been found, notably the platinum and chromium ores. On the other hand, the black cloud of natives is a threatening danger for the future. The blacks far outnumber the whites and their increase, now that the *pax Britannica* has put a stop to intertribal wars, is at a much more rapid rate. The traveller must be very cautious in attempting to determine the value of what the people of a foreign country tell him. Had he chanced to meet a different lot of individuals, he might have received a totally different series of impressions. The men with whom I talked in South Africa, whatever the weight of their opinions may be, were all apprehensive of an uprising of the natives against the whites. They said the Kaffirs had grown sullen and insolent and they feared that, eventually, there would be bloody work to do, if European civilisation were to be saved in South Africa.

We sailed from Beira on September 17 and were nearly three weeks in reaching Suez, stopping at Mozambique and Mombasa. For several days before reaching Suez, we had met no southbound ships in the Red Sea and felt sure (there was no wireless then) that the Canal must be blocked in some way. At Suez, this inference was confirmed and we heard that a dynamite ship had blown up in the Canal, stopping all

traffic. As had been previously arranged, we went to Cairo by special train and spent several days more there than had originally been intended.

Of my profoundly interesting glimpse of Egypt, I need say nothing more than that it made me register a vow to come back for a real visit, as soon as might be. As the authorities could fix no date for the opening of the Canal, some ten of our party, who had imperative engagements at home, sailed from Alexandria to Brindisi on the Austrian Lloyd steamer. From Brindisi, two Canadian friends, Professors McCallum and Coleman, of Toronto, and I went to Naples by the slow train. Passing Pompeii at eleven p.m. I was surprised to find Vesuvius in a state of moderate activity. At perfectly regular intervals of twenty seconds or so, an explosion took place within the crater, throwing up a shower of stones, which were red-hot by night, but showed black by day. In addition, there were two lava streams, glowing hot at night, creeping down the outside of the cone. The volcano was getting up steam for the tremendous eruption of April 1906, one of the most violent in its history.

The next day we devoted to a geological pilgrimage to Pozzuoli, first to the so-called Serapeum, the Roman structure, of which the monolithic, marble columns have registered the up and down movements of that coast for the last two thousand years. That same night we sailed for Boston in a White Star boat and had an entirely uneventful voyage.

It required a little time for me to catch up with the news, for comparatively few letters had reached me on my continuous journeying and we seldom had a chance to see a newspaper and, when we did happen on them, they told us almost nothing of what was going on in America. Even from England, the cablegrams were mostly cricket scores. The Russians and Japanese were negotiating for peace during that summer at Portsmouth, N.H., and, when the treaty was signed, we were informed of it by a brief note in the South African papers, and that was practically all the American news that reached us.

CHAPTER TWENTY-SIX

PRINCETON UNDER WILSON

ON my return, I found that a revolution had taken place in the life of Princeton. The much talked-of preceptorial system had been inaugurated and fifty or more picked young men from England, Canada and all over the United States had been added to the Faculty. The atmosphere of exhilaration and hopefulness, which Mr. Wilson had brought in with him had become even more sparkling and stimulating and those who had our experience in the autumn of 1905 are not likely to forget it. At my request, my friend and colleague Smyth, who came to Princeton at that time, wrote me the following letter describing his impressions.

Princeton, October 10, 1925

My dear Scott:

My early impressions of Princeton were, of course, much influenced by conditions within the department [of geology], more especially by the cordiality of your welcome. . . .

Van Ingen's tremendous enthusiasm and interest in departmental development also counted for much and we always worked together without the slightest friction, despite his rather high-strung temperament.

Altogether, the departmental situation, even with our inadequate quarters and equipment, was such as to make me take an optimistic view of everything in the University. And, as I recall those times, optimism was in the very air we breathed. The atmosphere was electric with promise, as well as with achievement. The preceptorial system was starting with a fine group of young men, picked from the whole country and had behind it not only the vision and enthusiasm of the President, but, apparently, the hearty endorsement of the Trustees. Though not a preceptor, myself, and though older than most of them I was new in Princeton and so, naturally, met and exchanged impressions with many of the group. Also, my old friend, Moore, was a preceptor,

living at the Bachelors', and, through him, I heard a great deal of the talk in that clearinghouse for local fact, news and gossip.

As I recall it all now, every one felt that Princeton was entering on a new epoch under most favourable auspices and with every prospect of a splendid future. . . .

And, in all this, President Wilson was the dominant factor. I am sure that all the newcomers had unbounded confidence in him and that this was the ultimate source of their faith in the future of Princeton. This was particularly true, because the inauguration of the new system brought the preceptors into much more intimate contact with the President than would ordinarily have been the case, and thus they felt the direct influence of his strong personality.

In view of what happened a few years later, this all seems rather sad; and I well remember your saying, as we walked home together the day President Wilson resigned: "That throws Princeton back a generation."

But, after all, has not the momentum acquired in that brief period been sufficient to carry us through the difficulties of subsequent years? And, though we may have our regrets, I find it difficult, sitting here in my room in Guyot [Hall] to feel anything but an optimism similar to that of twenty years ago, though somewhat tempered by age. Certainly, as a department, we have every reason to feel happy over future conditions and I see no reason why other departments should not feel the same way.

Cordially yours,

C. H. Smyth, Jr.

In the spring of 1906, after I had succeeded in forgetting all about them, honours began to come my way. In connection with the Franklin Bicentennial, for which the State of Pennsylvania made a liberal appropriation to the Philosophical Society, which had the celebration in charge, the University of Pennsylvania gave me my first honorary degree, that of LL.D. The whole of the Franklin ceremonial, which was managed chiefly by Dr. Hays, was most successful. Congress had voted $20,000 for a gold medal, to be given to France on this occasion, and Mr. Root, then Secretary of State, came on to present the medal and the French Ambassador, M. Jusserand, came to receive it. The Secretary made a very happy speech of presentation, rehearsing in a fresh, unhackneyed sort of way the great services of France to the American cause. The Ambassador's reply was even more pleasing. After expressing his great gratification at receiving the medal for France, he added: "And it

gives me special pleasure to receive this medal from the hands of my friend Mr. Root, whom I first knew as Secretary of War, now as Secretary of State; emphatically the right man, whatever the place."

President Eliot made one of his characteristic, wet-blanket addresses, pointing out the many reasons for not admiring Franklin. He almost made me ashamed of my descent from the disreputable old party. The reception and dinner, with which the three-day celebration wound up, were especially brilliant. Senator Lodge, who came as President Roosevelt's personal representative, made an excellent speech, though he had to twist the British Lion's tail a little, to which George Darwin replied in a very good-humoured way. M. Jusserand, who was a member of the Philosophical Society, spoke with the grace and mastery which one always finds in his historical addresses.

A telegram from Osborn informed me of my election to the National Academy of Sciences, which, needless to say, gave me profound gratification. Marsh's ban had, at last, been lifted, nearly seven years after his death. Our sessions were still going on when the dreadful news arrived of the earthquake and fire at San Francisco, grieving and depressing the whole company, though the loss of life turned out to be less than had been feared.

The International Zoölogical Congress met at Boston in the summer of 1907 and was a memorable gathering of distinguished men. As I have usually found to be the case, the principal value of the Congress was in its social side, in the opportunity to see old friends again and to make new acquaintances among men whose work has long been familiar. Of the papers and discussions, I have but the vaguest recollection, with the exception of an astonishing paper by Professor Gustav Steinmann, of Bonn, read before the Palaeontological Section. The paper was an advance abstract of a small book on the theory of evolution (*die Abstammungslehre*) which was published some months later in Germany. Steinmann had had an excellent reputation as a geologist, especially for the work which he had done in South America, but that paper, and the book as well, were made up of the most startling absurdities that I ever heard. The audience listened in perfect silence to these new doctrines and not a word was said in discussion of them. If I may judge others by my own sensations, we were all stunned and helpless in an atmosphere of bewilderment and unreality, which made it impossible to offer the objections that came crowding into the mind. I felt very much as I had, in my childhood, when I first read the bewildering fallacies of *Alice in Wonderland*.

Among the excursions arranged for the Congress was one to Princeton and I hurried down from Cataumet, to help receive the visitors, of whom only a heroic little band appeared. The others had been so completely exhausted with journeys and receptions that they gave out and begged for a chance to rest. Hubrecht, who brought with him a party of ladies from Holland, lay down in a pew in the chapel and went sound asleep, while I escorted the ladies around the campus. Dr. Farr and I had prepared an exhibition of the Santa Cruz fossils from Patagonia and over these Depéret and I nearly came to blows. Among the exhibits were the architects' tentative elevations for our new building, which was to be named "Guyot Hall."

Mr. Cleveland Dodge, a classmate of Wilson's, had announced that his mother would erect a building for geology and biology, which should correspond to the magnificent physical laboratory which Mr. Stephen Palmer was putting up. Mr. Dodge authorised me to appoint a travelling committee which, accompanied by one of the architects, Mr. Schroeder, was to make a study of all the laboratories within reach, which might give us valuable suggestions. Accordingly, Professors Phillips, McClure and van Ingen and Mr. Schroeder examined every important building of the kind between Boston and Chicago and southward to Baltimore and Washington. The floor plans, worked out by the departments concerned and put in shape by van Ingen, were accepted by the architects with hardly any change. Being, thus, practically designed by the men who were to use it, Guyot Hall has always been a very satisfactory place in which to work.

Immediately after the visit of the (small fraction of the) Congress, I returned to Cataumet and spent the remainder of the summer in seeing the second edition of my *Geology* through the press. While still there, I received a letter from the secretary of Harvard University, saying he hoped that I might be sent, as one of the Princeton delegates, to the inauguration of the new President, Mr. A. L. Lowell, in the coming October. For this, the very gratifying reason was given that it was proposed to confer upon me the degree of D.Sc., *honoris causa*. The inaugural ceremonies at Cambridge, held, for the most part, out of doors, were beautiful and impressive. The presentation of the delegates to the retiring and the incoming Presidents took place in Saunders Theatre. The Princeton contingent, Woodrow Wilson, Henry van Dyke and myself, was received with great applause, more enthusiastic, I thought at the time than that given to any other delegation. It will be

unnecessary, I trust, to add that I did not appropriate any of this applause to myself.

I must say something of the unhappy controversies which distracted Mr. Wilson's administration and robbed it of much of its usefulness. I was a supporter of his policies, but I think I can appreciate and do justice to the views of those who thought it their duty to oppose him. There were two subjects of debate, the site of the Graduate College and the clubs, which, though originally quite distinct, became inextricably intermingled. In 1903 Dean West had published a book on *The Proposed Graduate College of Princeton University,* illustrated by the architects' drawings. The building, and this is a very important point, was designed for the "Academy Lot," the large plot of ground along Washington Road on which McCosh and Dickinson Halls and the new chapel now stand. At that time only the Marquand Chapel and the Dean's house then stood on it. Mr. Wilson wrote a preface for West's book, in which he gave his approval to the plan.

The Class of '79, which had arranged to erect their dormitory, now Seventy-nine Hall, for their twenty-fifth anniversary, in 1904 had selected the Academy Lot for their site, but gave this up in favour of the Graduate College. The history of the lot is a romantic one, more like a sensational novel than sober fact. In my Mother's young days, there had been an academy for boys on this site and Washington Road was then called "Academy Lane." When the school was abandoned, it was bought by Mr. Thomas Potter, who then lived in Prospect, and the building was removed. From time to time, Mr. Potter bought other lots along the Lane, until he had acquired all the land between William Street and the present line of McCosh Walk. In his will, Mr. Potter bequeathed to his son William the "Academy Lot," without specifying just what he meant by that term. Mr. William Potter wished to sell this land to the College, which was equally anxious to buy it, but could not, because of the lack of a clear title. Thus the matter remained in abeyance for many years, until Mr. Leroy Anderson bought the James Potter house, at the corner of Bayard Lane and Nassau Street, now belonging to Mr. Edgar Palmer. In an old trunk in the attic of that house, Mr. Anderson found all the deeds and other documents required to clear the title of the "Academy Lot," which the College immediately purchased.

For several years, the experiment had been tried of making a little residential college for graduate students at Merwick, in Bayard Lane, where Bishop Matthews now lives, and the undoubted success of that

experiment was a confirmation of West's views. Mrs. Swann's bequest for the building of the Graduate College made the question of site one of immediate practical importance. The erection of McCosh Hall had made the Academy Lot unsuitable and therefore Messrs. West and Hibben favoured the golf links, the site ultimately chosen, while Mr. Wilson wished to have it on "the campus," in the restricted sense of that word, and his approval of West's 1903 plan had been conditioned on a campus site. He even offered to give up the beautiful grounds of Prospect for the purpose. Before Mrs. Swann's death, Mr. Wilson had, it was said, promised Mr. Cleveland that the Graduate College should be the next great project for which money was to be raised. The proposal of the unfortunate "Quad System" was loudly decried as a breach of the agreement and Mr. Cleveland was very bitter on this point. On this particular head, I have no first-hand information, but I feel certain that the whole difficulty arose from a misunderstanding, but was none the less deplorable for that.

As the Faculty committee on the Graduate School was hopelessly divided and was made up exclusively of Princeton graduates, the Trustees legislated it out of office and appointed another, in which distinguished graduates of other colleges were represented. All of this committee, except two, urged that the proposed Graduate College should be built as near the center of the campus as possible, while two members, West and Hibben, voted to have it built on the golf links, where it now stands. The question of site was made acute by a letter from Mr. W. C. Procter, of Cincinnati, a close friend and former pupil of Dean West's, who wrote to him on May 8, 1909, offering to give $500,000 to the Graduate College, as described in the Dean's book, "provided the scheme is carried out on those lines." Mr. Procter rejected the site at Prospect and felt "therefore obliged to say that this offer is made upon the understanding that some other site be chosen, which shall be satisfactory to me." A month later, Mr. Procter wrote to the President, saying: "My preference still remains with Merwick. If this does not meet with your views and those of the Board of Trustees, I will accept the golf links, provided a better approach is secured."

Mr. Procter's offer led to an embittered and angry controversy. The offer was not immediately accepted and, after considerable debate between a special committee of the Trustees and Mr. Procter, the latter withdrew his offer by his letter of February 6, 1910. By this time, the controversy had been still further envenomed by Mr. Wilson's attack upon the upperclass clubs, which had split the Faculty from top to

bottom. He proposed to suppress the clubs and convert the houses into colleges somewhat after the plan of the older British universities. Mr. Wilson was a master of phrase, but he was ill-advised when he chose the name "Quad System" for his plan, a somewhat flippant, slang term, which his opponents did not fail to turn into ridicule. In debating this question in the Faculty, the President was opposed almost entirely by Princeton graduates, who dreaded any revolutionary changes in their beloved university. The graduates of other colleges were with Mr. Wilson almost to a man and, had the matter ever come to a vote, I am sure the President's plan would have been adopted.

The New York alumni, as a body, though with individual exceptions, were bitterly opposed to the "Quad System." After his speech at the Princeton Club, in New York, in which he explained and advocated the plan, Mr. Wilson was much hurt by the extreme coldness of his reception and said to me, "They want to get rid of me." The controversy over the proposed innovation died out by default; to carry the scheme into execution would have required very large sums of money and no attempt to secure the needed fund was made. Mr. Wilson's resignation of the presidency to become Governor of New Jersey put an end to the plan, though he cherished it to the end of his life. In the last conversation I ever had with him, about two years before his death, he fairly paralysed me with astonishment by saying: "I had hoped that they would call me back to Princeton, to finish the work I had been unable to do there."

It was a curious inconsistency that the most ardent advocates of a college for graduate students should have been so inflexibly opposed to colleges for undergraduates. In my opinion, it is a thousand pities that Mr. Wilson's plan was not carried out. I am convinced that, if our present regrettable though imperative limitation of numbers is to come to an end, it will be necessary to set up a system of federated colleges, somewhat on the English scheme. To those who pursued Wilson with such hatred, it cannot be pleasant to see Yale and Harvard adopting his suggestions, of course without any credit to him. The clubs have many excellent features and I shall be sorry to see them go, but go they must eventually.

The foregoing account is an abbreviated form of a document which I read over to my dear and ever-to-be-lamented friend Dean H. B. Fine, on the afternoon of Christmas Day, 1925, and asked him whether he would accept it as an accurate statement. He replied that he would, save for one omission of importance; he said that Mr. Wilson's uncompromising stand on the question of site for the Graduate College was incompre-

hensible to most people and that he, Fine, had once asked him whether he could not concede something in this matter. He replied: "Harry, you are asking me to give up my whole case." He attributed the utmost importance to having the Graduate College in close touch with undergraduate life as a stimulus and a leaven in elevating the intellectual tone among Princeton undergraduates, for which he worked so hard.

This idea is clearly expressed in the prefatory note which Mr. Wilson wrote for Dean West's book on *The Proposed Graduate College* and it is the failure to comprehend this, which has made so many people misjudge Mr. Wilson in this matter. Some have accused him of senseless obstinacy, on the one hand, and of breaking his promises to Dean West, on the other, but neither accusation is justified. I can't agree with him in the importance which he attributed to the neighbourhood of the Graduate College as a means of elevating undergraduate sentiment. He withdrew his opposition to the golf links site because of the entirely new situation created by the Wyman bequest. That site is a compromise, perhaps the best that could have been found. The distance of the College from the laboratories and lecture-rooms is undoubtedly a drawback, but the necessary room for expansion could not have been had in a less remote site.

Mr. Cleveland died in June 1908 and was given a semipublic funeral, President Roosevelt coming on from Washington and the Essex Troop of Cavalry acting as escort. The sincere and spontaneous tributes to his memory, even from his most violent political enemies, made manifest a wonderful change of opinion since the end of his public life. When he left the White House for the last time, in March 1897, he was bitterly hated by the Republicans and by a great many Democrats, the latter accusing him of having split the party by his repudiation of Bryan and the free-silver policy. Almost immediately, public opinion began to turn in his favour and he was dubbed the "Sage of Princeton." After the great scandals in the life insurance companies of New York, which were exposed by Mr. Hughes, the affairs of the Equitable were in a very dangerous state, because of public suspicion and lack of confidence. Mr. Ryan, who had bought control of the stock, put the company into the hands of three trustees, one of whom was Mr. Cleveland. The way in which public confidence was at once restored, was an eloquent testimony to the esteem in which he was held throughout the land.

So far as I was concerned, the principal event of 1909 was the Darwin Centenary at Cambridge, which I attended. It was a very interesting occasion and, from all over the world, a brilliant company of scholars

had assembled, to do honour to the memory of the man who had revolutionised all departments of human thought. The principal address, in the Senate House, was made by Ray Lankester, who was an uncompromising "standpatter" and maintained that Darwin and Weissmann had said the last word on Evolution. Professor Oscar Hertwig, of Berlin, spoke in German and dwelt principally on the great services to Darwinism which "mein Bruder Richard und ich" had rendered. One of the German delegates was Professor Bütschli, of Heidelberg, who astonished me by recognising me at once, recalling the fact that he had examined me for my degree nearly thirty years before.

Dr. Brunnow had given me a letter to Professor von Domaszewski, the historian of the Roman Empire, which I presented, when I went on to Heidelberg. Our interview was one I shall never forget, in view of what followed five years later. After an amicable debate on the subject of Mommsen, who was always one of my *bêtes noires,* the mountainous man suddenly changed the subject to England, which was *his* particular *bête noire.* He declared unreservedly that Germany meant to attack England and that when all preparations were complete, would proceed to give Britain the worst threshing she had ever received; "furchtbare Prügel" was his expression. In the time of William II the Universities were one of the principal agencies used by the government in the manufacture of that strange thing called public opinion in Germany, and I, therefore, felt at once that this declaration was significant. My suggestion that, perhaps, the Germans would not find it so easy to administer the "Prügel," was waved aside as of no importance and the fact that he made no secret of it showed his entire confidence in German invincibility. By birth an Austrian Slav, Domaszewski had become the most ardent of German chauvinists and he proclaimed his pride in belonging to such a wonderful nation.

In 1910 the Wollaston gold medal of the Geological Society of London was conferred upon me, the greatest honour I have ever received, unless the Oxford degree, two years later, should be ranked even higher. One of the pleasantest features of this high distinction was the shoal of congratulatory letters which the announcement called forth from my English and American friends. As I could not go to London to receive the medal *in propria persona,* the American Ambassador received it in my place and it was forwarded to me through the State Department.

The Democrats nominated Wilson for the governorship of New Jersey and he at once plunged into the work of campaigning with zest. I should have thought that, to one of his fastidious temperament, the

rough and tumble of politics would have been distasteful. Not at all; he told me that he was enjoying himself immensely. The party managers thought that this cloistered "schoolmaster," who had had so little experience of practical life, would allow himself to be guided by them. When they found out their mistake, they nearly burst with rage and hated him venomously to the end of his life. Before election day he resigned the presidency of Princeton, thus bringing to a close an administration, which, though only eight years long, was wonderful in the impetus it gave, an impetus which we are still feeling. There was an interregnum of two years, until the election of Dr. Hibben.

CHAPTER TWENTY-SEVEN

PANAMA—ITALY—SWITZERLAND—ENGLAND

THE year 1911 stands out in my memory principally because of my visit to the Panama Canal and my trip through Italy and Switzerland with my two older daughters. It was, I think, in February of that year that I was invited to make a speech at the dinner of the Geographical Society of Philadelphia, when Colonel Goethals gave an account of his work on the Canal, illustrated with moving pictures. In the course of my speech, I told the story of the man on Hat Creek, Neb., who was "huntin' for some other dam' fool with a return ticket," making the application to myself, that I was hunting for some other highly intelligent person, who would give me a return ticket to Panama. When the company was breaking up, Colonel Goethals said to me: "Did you really mean what you said about wanting to go to Panama?" "Of course I did," I replied, "I meant it most thoroughly." "Well, if you'll let me know, when you're ready to start, I'll see that you get transportation." The Colonel was as good as his word and I got away from New York by the S. S. *Panama* on April 13.

The ship was a quite new experience; though comfortable and scrupulously clean, she was severely plain and had none of the luxurious fittings of a transatlantic liner. A letter begun on shipboard on April 15, says: "The voyage has been entirely uneventful, so far; to my surprise, I have been nearer to seasickness than for many years past, and, on Wednesday evening, I was glad to go to bed, lest a worse thing befall me. I have had my room to myself, a very great boon. It is quite a novelty to have a cabin with a large window, which has been kept open day and night; the room has a freshness and sweetness that I never before experienced at sea." The passengers were mostly Canal employés, of the lower grades, some of them quite rough, but of unobjectionable behaviour. I made the acquaintance of two pleasant Virginians and of a young naval officer and his wife. The officer, though a graduate of Annapolis, had entered the construction division of the service and was on a secret mission to various South American governments. That

secret has long been out and referred to securing orders for naval vessels from American shipyards.

On arrival at Cristobal, a messenger from Colonel Goethals met me at the pier and gave me a blanket railroad pass, which enabled me to travel by train as much and as often as I liked. I went immediately to Panama, getting some glimpses of the Canal on the way. Indeed, on that trip I had one of the most impressive views of the great work that I had at any time. The railroad then crossed the line of the Canal near Pedro Miguel and from that bridge we looked back through nearly the whole length of the Culebra Cut, then flooded with the light of the setting sun. It was overwhelming and looked like a great canyon through the mountains; that it was a man-made valley seemed altogether incredible. We all put up at the immense Hotel Tivoli, which is at Ancon, just outside of the city of Panama and within the Canal Zone.

I had a letter of introduction to Colonel Gorgas and called on him after dinner, immediately recognising him as one of the acquaintances I had made in Havana. As he was a warm friend of my Brother's, he received me very cordially and, during my stay, did a great deal to render my visit interesting. Thus began one of the most fascinating weeks in all my experience. Every facility was given me to inspect the Canal from end to end. The geologist of the Canal Commission, Mr. McDonald, guided me through the Culebra Cut, the structure in which is highly complicated and, without such skilled guidance, I should have been lost, for the short time I could be there. Of course, the first deep impression made upon me was the colossal scale of the work, both in excavation and construction, and I have always been glad that it was my privilege to visit the Isthmus at a time when the immensity of it all was clearly displayed.

In the finished Canal, so much of the vast work is hidden under water that the visitor can form but a very imperfect conception of all that was accomplished. Colonel Goethals once remarked to me: "When the Canal is finished and in use, people will come down here and say: 'those fellows who did the work were the worst grafters in history; where did all that money go?' " This was merely a jesting way of saying that the finished work would reveal but a relatively small part of the unconscionable total. Under Mr. McDonald's guidance, I gained an entirely new conception of the geological history of the Isthmus and one which fitted very much better in the results of our work in Patagonia and in western North America than did the old account given by the

French. Had there been nothing else, that new conception would have been an ample harvest for the journey.

Another very deep impression was of the indescribable complexity of the work and the wonderful manner in which all parts of that vast machine were so coördinated that they worked together harmoniously, with very little friction and, to the onlooker, seemingly without effort. The machine seemed almost to run itself. Some friction there was; one could not be long on the Isthmus without discovering that the relations between Colonel Goethals and Colonel Gorgas were somewhat strained. Naturally, each had his zealous partisans, who talked much more unreservedly than their chiefs. The difficulty, in part due to differences of temperament, was caused chiefly by financial considerations. Colonel Goethals fully appreciated the vital importance of the sanitary work, but thought that it was not conducted as economically as it might and should be. Colonel Gorgas, on the other hand, cared chiefly about results and was said, I don't know how truly, to be rather indifferent to questions of expense.

However that may be, the work of sanitation was carried out with the astonishing success, over which "all the world wondered." Surprising as it sounds, I neither saw, heard, nor was bitten by a mosquito while I was on the Isthmus and only once did I see a fly inside of a house. Colonel Gorgas laughingly told me that, occasionally, he received complaints from visitors to the Tivoli, that "a mosquito had been seen in the hotel." He also told me that the sick rate among the employés was only 10 per 1,000. The working force consisted chiefly of West Indian Negroes, who were at home in a tropical climate, but among white Americans and Europeans the results were even better, for the death rate of the whites was much lower. The women and children of the American families looked healthy and rosy and it was currently said that Gorgas had converted the worst pesthole on earth into a health resort. It wasn't that exactly, for many Americans could not endure the life and had to go home. Even of those who contracted no specific disease, many broke down under the unrelenting pressure of the climate.

I was somewhat surprised to find that Colonel Gorgas' work was so widely and so heartily appreciated in the Canal Zone. One of the most eloquent tributes that I heard there to the value of that work was from the foreman of a gang of labourers, who were excavating for the foundations of the north locks at Gatun. I thought it would be interesting to hear his opinion of the sanitary work and asked him what he thought

of it, expecting to hear him declare that it was expensive foolishness. Quite the contrary. He said: "In the French time I was a conductor on the Panama Railroad and I ran De Lesseps' special, when he was on the Isthmus. I hardly ever took out a train without several dead Frenchmen in the baggage car and I have seen the dead laid out in rows in the streets of Colon, because there wasn't time to bury them. Now, look at the contrast; you can see for yourself."

I have often heard it said and have read in books that the triumphant achievement of the U. S. Government, in building and operating the Canal after private enterprise had confessed its inability to do the work, was a convincing argument in favour of State Socialism, but this is to ignore the facts. The whole organization of the Canal force was that of an army encamped in a foreign country and drawing all its supplies by sea from the base at home. The military organisation was not made conspicuous, uniforms were not worn, but, nevertheless, the whole was essentially military. Not only were the prompt decision and the unhesitating carrying out of orders, which are characteristic of good soldiers, of the utmost advantage in the prosecution of the work, but the Army also provided a large number of officers experienced in the services of supply, of engineering, and medical and sanitary work. These men could be ordered to the Isthmus as they were needed, and it was not necessary to tempt them by very high pay. The staff departments supplied, almost without exception, the men required in the higher grades of the organisation. Socialism does not call for military rule.

After a week of most interesting and profitable experiences and much kindly hospitality from the officers, I returned to Princeton. I spent a month at home and then sailed for Naples, accompanied by my two older daughters. This was a novel and delightful experience, for, as I have explained, nearly all my travelling has been done alone. When we reached Naples, I learned that cholera was rife in Italy and that a passenger who left New York on the North German Lloyd S. S. *Moltke*, sailing later than we did, had already died of it. Naturally, I was much perturbed on the girls' account, but was reassured by two German physicians, to whom I had brought letters. They told me that, by taking a few simple precautions, we might safely remain in Italy. From Naples we went slowly northward, stopping at Rome, Florence, Venice and thence, by way of the Brenner Pass and Innsbruck, to Munich and Heidelberg.

That was my last visit to Germany before the World War. I had observed from time to time the growth of wealth and luxury and had

long been accustomed to the belief that Germany was intentionally heading for a great war. Prophets of woe were not lacking in the Reich and a swarm of novels appeared which maintained that the army was being undermined and corrupted by wealth. Beyerlein's *Jena oder Sedan* made a great sensation and, at the same time, aroused fierce anger by its description of rich young men who entered the service merely for the social prestige which it gave them and whose arrogance and tyranny made the army a breeding-ground for Socialism. I had no means of telling how far these jeremiads were true; probably the tendencies they described were real, but, if so, the War proved that the wonderful German military machine had suffered no deterioration.

In 1926, after attending the International Geological Congress at Madrid and making a short stay in Paris, I had an intensely interesting visit of nearly three weeks in Germany. Most of the time was spent in Heidelberg, but I also visited Strassburg, Stuttgart and Cologne. Such of my old friends as were still alive, gave me a cordial welcome, cherishing no resentment, or, at least, displaying none, on account of the part which we had taken against them in the War. They all attributed their defeat to us, saying, with practical unanimity, "if it hadn't been for you, we should have won." The civilians passionately repudiated the idea that Germany had brought on the War, though such officers as I met had nothing to say of their country's innocence. Indeed one "professional" officer (i.e. as distinguished from the Reserve) who had spent his life in the army, gave me distinctly to understand, without exactly saying so, that the Great General Staff was responsible.

While they all looked back on the war years with horror, many told me that the inflation period was even worse. My landlady at a *pension* told me that she had been glad to accept an American dollar for a month's board and lodging. A Heidelberg professor confirmed this, saying that, at that time, whoever had a dollar, had a fortune. I remarked that the people one saw on the streets were comfortably clothed and seemed well fed and that I could see but little sign of poverty, and was told that there was a great deal of poverty that hid itself; people who had been living on their invested savings and had lost them all in the inflation time, and a great many officers' families were slowly starving. Of soldiers, I saw none at all and the most obvious change from the old Germany was the disappearance of uniforms from the streets; policemen, postmen and employés of railroads and streetcars were the only uniformed figures one saw. The officials in the post offices

and even at police headquarters were in civilian dress and had laid aside, with their uniforms, their notoriously bad manners. The only rudeness I met with was from the German official at the French end of the Rhine bridge at Kehl.

The German revolution seemed, to me, to have been a very superficial sort of thing and a very large party, apparently including all the nobility, were still monarchists and desired a Hohenzollern restoration, though I met no one who wanted to have the Kaiser or the Crown Prince brought back. Even the women were bitter against them, though they would have been glad to see the eldest son of the Crown Prince on the throne. As to the spectre of Bolshevism, one got very different impressions from different people. The Conservatists maintained that the danger of a Bolshevist revolution was by no means past, but the middle-class folk, shopkeepers, for example, with whom I talked, laughed at such notions and said they were all nonsense. At Strassburg, I was surprised to hear people say that they preferred German to French rule.

Of course, an individual's impressions are of no great importance, for another traveller, talking with a different lot of people, might have had totally different experiences. However, what I saw and heard is not without significance and may be set down for what it is worth.

To return to the 1911 visit, I greatly enjoyed some weeks in Switzerland, of which wonderful country I had seen but little before. Our headquarters were at Rossinière, from where we made many delightful excursions. Zermatt, the Gorner Grat and the Schynige Platte were all new to me. We went from Zermatt to Paris in a day, a terrible journey because of the phenomenal heat of that summer, and then, after a few days in Paris and Fontainebleau, my daughters went to England and I sailed from Antwerp.

The following summer, I returned to England for the 250th anniversary of the Royal Society, to which I had been appointed the delegate of the American Philosophical Society. Of my adventures in England I cannot give a more succinct account than by inserting here a copy of a letter which I wrote to my friend Smyth. The extremely hot weather which I encountered in London, the continuous round of festivities and ceremonies and the sleeplessness from which I suffered almost all the time I was in England used me up completely and I welcomed the steamer that took me home as a chance to get a sadly needed rest.

On board the Cunard R.M.S. *Franconia*
July 24, 1912.

My dear Smyth:

In the enforced and most dreary idleness of shipboard life I find opportunity to fulfill my promise and give you some account of the Royal Society junketings.

I sailed from Boston on July 2 in the *Arabic* and had a very quiet and comfortable (with the usual reservations) voyage of something less than nine days, landing at Liverpool early on the morning of the 11th, and was in London by lunch time. Awaiting me was a very nice letter from Poulton with the news, equally astonishing and delightful, that an Oxford degree was impending over my head.

Saturday and Sunday were very agreeably spent in Cambridge and I was back in London in time for the preliminary reception of "the Royal" on Monday evening. There was a big bunch of Americans there, including Hibben and Fine, Hadley, Butler, etc., etc. Each country was to select its spokesman for the addresses on Tuesday, and the lightning hit me. No particular compliment was implied in this, for the delegation wished both to avoid the discussion of personal fitness and to head off some that might be thought to have claims, so the place was given to the A. P. S., as the oldest of American scientific societies, rather than to me. I wanted very much to refuse, but could hardly do so under the circumstances.

Tuesday morning there was a short service in the choir of Westminster Abbey, which was extremely impressive and the singing was quite wonderful; most of the delegates attended in Academic costume, which the damp, muggy heat rendered almost intolerable.

At 2.30 came the presentation of addresses, one speech limited to three minutes, for each nation; then all the delegates of that country, as their names were called, filed before the president and made their bow to him, handing in the written addresses at the same time. At this game the Germans scored heavily, for they presented a beautiful bronze tablet from the "Universitates Germaniae," which aroused great enthusiasm. The whole function was made very trying and oppressive by the suffocating heat, three hundred or more delegates being jammed into the Society's library and a heavy silk gown being no alleviation.

In the evening was the great dinner at the Guild Hall, a beautiful sight and a magnificent dinner, but the speeches were dreary for the most part. Mr. Asquith was very disappointing; he merely read some

notes that had evidently been prepared by his secretary. I could not hear the Frenchman and the Dutchman, nor understand the Italian; but much the best speech of the evening, to my taste, was made by old Waldeyer of Berlin. Unfortunately, he spoke in German, and it is to be feared that most of his audience did not understand him.

Wednesday morning was given over to sight-seeing parties, which, needless to say, I avoided. In the afternoon I went with Hobbs and his wife in a taxicab to the Duke of Northumberland's garden party at Syon House, near Brentford, a drive of eight miles or more. . . . The enormous house has many interesting portraits and the grounds are most beautiful; the entertainment was on a very lavish scale and served in a vast marquee. The so-called *conversazione* in the evening saved its face by a few scientific exhibits, but was essentially a dense crush. So far as costumes went, it was a very brilliant affair; not to mention the ladies' dresses, there were hundreds of scarlet gowns, court suits, official, diplomatic and military uniforms, quite a dazzling picture.

Thursday's only affair was "Their Majesties' Afternoon Party" at Windsor Castle, which was very well worth seeing. The delegates were taken down in a special train and spent a couple of hours going over the castle. Then we were marched to the East Terrace and arranged in a double column, after which the King and Queen appeared, followed by their train. We walked by them as our names were called and, greatly to my surprise, they shook hands with each of us. This ceremony completed, we joined the vast crowd of guests, the newspaper estimates of the number varying from seven to ten thousand. The view from the terrace out over the wonderful lawns and the thousands of ladies was one long to remember. Never having been the guest of royalty but once before, I departed from my usual custom and partook freely of the refreshments, which did credit to Their Majesties' hospitality.

On Friday the delegates were pretty equally divided between Oxford and Cambridge, I, of course, going to the former. On arrival, the candidates were taken to the hall of Brasenose College and presented to the Vice-Chancellor, who "stayed us with flagons and comforted us with apples," or, in less Scriptural language, offered fruit and wine. After putting on scarlet robes, we marched in procession to the Sheldonian Theatre and there the degrees were conferred in the usual manner, but as the undergraduates were all "down," without the customary guying. The other men honoured were Backlund, Brögger, Waldeyer and Zeeman, a remarkable list, which made me feel that I was not "trotting in my class" at all.

I was quite surprised to find that the public orator was Godley, whose *Lyra Frivola* you have often heard me quote; like most humourists he is a very solemn and lugubrious looking person. I said to him, when I was introduced: "I understand that you are going to libel me today," to which he answered: "At least, it will be in the decent obscurity of a dead language." As a matter of fact, he *did* libel me and declared that I had spent three years in Patagonia! That base calumny I shall never be able to live down.

The next thing on the programme was a beautiful luncheon, beautifully served in the library of All Souls College, very enjoyable despite the rather dreary speeches, of which the most tolerable was made by Lord Curzon, Chancellor of the University. This was followed by a garden party at Wadham, and in the evening I went to a dinner given by Poulton in the hall of Jesus College, which was delightful. Bed was very welcome after a strenuous and most memorable day.

Saturday and Sunday I remained at Oxford as the guest of Sollas, meeting at his house Brögger, Dollo and de Geer. Monday morning I returned to London and wound up my affairs there and dined with a dear old lady of whom I have been very fond ever since my student days, when she and her husband were extremely kind to me. Tuesday at noon I took the special train for Liverpool and sailed shortly after five.

If anything could reconcile me to a sea voyage, it would be this ship, which is by far the most luxurious and comfortable I have ever been in. It is my incredible good fortune to have my cabin to myself; the man who had the other berth came aboard at Queenstown, but fled incontinently at sight of me, demanding another room, which the purser gave him.

There, I have actually taken time from my absorbing and exacting occupations to write you this brilliant letter and I hope you will be duly grateful for your privileges.

With kindest remembrances to Mrs. Smyth and your Mother, I am,

Very sincerely yours,

W. B. Scott.

My stay in England was only about a fortnight in length and yet in that short time I was greatly struck by the venomous hatred of nearly all the people of the upper classes with whom I talked toward Lloyd George, in particular, and the whole Asquith government, in general.

In my student days in London and Cambridge, I had found among the Conservatives an intense hatred of Gladstone, which cropped out on all occasions. That, however, was but a pale and feeble sentiment as compared with the detestation which the Tories felt toward Lloyd George. An anecdote was current that summer, which, though foolish enough, was yet significant of the violent hatred which it expressed. An individual, who had rescued a man from drowning, was asked to tell how it happened. He said: "I was fishing from a punt, when this fellow came floating past, face down. I grabbed him and first, turned him over, to make sure he wasn't Lloyd George, and then pulled him into the boat."

To an English friend, a fellow of the Royal Society, who had been present at the great banquet in the Guild Hall, I expressed my surprise at the kind of after-dinner speech with which the Prime Minister had favoured us, saying: "I had always understood that Mr. Asquith was a great speaker, but that performance last night was a pretty poor one and disappointed me greatly." My friend answered: "You must remember that he was handicapped by knowing that every man in that room hated him." A distinguished man of science at Cambridge was offered a knighthood by the Asquith government, which he was most reluctant to accept. I was told that his wife fairly went on her knees to him, begging him to refuse, but he felt it a duty to accept. That fortnight in England, despite its exhausting character, was one of my most memorable experiences.

CHAPTER TWENTY-EIGHT

WOODROW WILSON PRESIDENT OF THE UNITED STATES—THE WAR

JOHN GRIER HIBBEN was elected to the presidency of Princeton University and inaugurated in the spring of 1912. When I heard of this election, I was greatly disappointed and cast down, for I feared that it signified the triumph of Mr. Wilson's bitterest enemies. In this, happily, I was entirely mistaken. Dr. Hibben's genial and kindly nature rapidly healed the breach which the violent controversies had made. He gave us an admirable administration, one of the most successful in all our history, and I, in particular, have every reason to be grateful to him for the way in which he enabled me to expand and strengthen the department of geology.

When I sailed from Boston on July 2, 1912, the Democratic convention in Baltimore was in session, and the news of Wilson's nomination reached us while still at sea. When Mr. Wilson was nominated for the governorship of New Jersey, the Democratic bosses fancied that he was a cloistered recluse, whom it would be easy to deceive and bend to their own purposes. When this expectation was shown to be an absurd delusion and Governor Wilson began to loom up as a formidable competitor for the presidential nomination of his party, a systematic attempt to discredit him was inaugurated. The artificial nature of this attempt was made plain by the rhythmically recurrent attacks which even stooped to the publication of private letters. Whatever opinion may be held of Mr. Bryan, it must always be remembered to his credit that, large-mindedly ignoring Mr. Wilson's published disparagement of him, he yet prevented the nomination of Champ Clark and secured that of Governor Wilson. It was assuredly "a merciful dispensation of Providence" that Wilson, not Clark, was at the helm, when the ship entered the wild waters of the struggle with Germany.

When I returned to Cataumet for the remainder of the summer, after an absence of a month, I learned almost immediately of the vile

tactics of the Republican managers, who were attempting to discredit Governor Wilson by filthy slanders as to his private life. These infamous lies ran all through the country from coast to coast and were kept alive so long as Mr. Wilson was in the White House, yet they never appeared in print, in which case they might have been met by a libel suit. A Cape Cod neighbour who went up to Boston every day, asked me what I knew of Mr. Wilson's morals, quoting a friend who said he would like to vote for Mr. Wilson but could not do so because of the latter's infamous private life. I answered that, in a little town like Princeton, it was impossible for any one to lead a double life without detection; that I had known Governor Wilson intimately for more than thirty years and that his life was as completely irreproachable as that of any man could be. So thoroughly inapplicable were these tales, that they were grotesquely absurd.

President Roosevelt had been slandered in a somewhat similar, underground fashion; tales representing him to be a drunkard had been gleefully circulated by the more unscrupulous of his political enemies. At last, an incautious editor, somewhere in Michigan, printed these fables and gave Mr. Roosevelt a chance to nail the lie in open court. Mr. Wilson never had the opportunity to bring the matter to an issue; indeed, I am not sure that he knew of the slanders, for, in conversation with me, he never alluded to them.

A representative of one of the New York newspapers called on Professor Paul van Dyke and asked him to confirm the stories which were so rife as to Mr. Wilson's morals, and, when van Dyke declared that he knew of nothing which could, even remotely, support the slanders, the reporter gave an illustration of his own code of honour. As Paul told the story to me at the time, the reporter said: "You were strongly opposed to Wilson, when he was president of Princeton, and you must be willing to tell something discreditable about him." Van Dyke answered: "I was very much against some of his policies, but that wouldn't justify me in slandering him. I know nothing to his discredit." Not satisfied with this, the newspaper man made a second call, to see if he couldn't extort something to substantiate the rumours, of course, with no better success. The slanderers were eager enough and tried hard enough to find corroboration, but they never secured anything which they dared to print.

The schism in the Republican party and the nomination of Mr. Roosevelt by the Progressives made Mr. Wilson's election a certainty and, therefore, no one was surprised by the result in November. Very shortly

after the election the National Academy of Sciences held its autumn meeting in New Haven and several members came to me in great alarm over what they believed to be the imminent appointment of some very unfit person (I have quite forgotten who it was, for he was never more than a name to me) as the head of one of the scientific bureaus in Washington. They asked me to carry their protests to the President-elect and I did so, as soon as I returned home. Governor Wilson laughed and said: "You need not be alarmed; I have no intention of appointing that man, though I have been bombarded with letters and telegrams recommending him. As Governor of the State, I have learned how to distinguish a machine-made movement in support of a man, or a measure, from a genuine, spontaneous one. This fellow's support is entirely artificial."

When I entered the Governor's library, I found my Brother just ending an interview with him, an interview which the "Colonel," as he was then, has described in his *Memories* and has told how he felt tempted to put in a word for himself, but wisely refrained. I should like to add that I never asked President Wilson to promote my Brother, and never made the slightest hint or allusion as to such a thing. The successive promotions were the President's spontaneous acts; indeed, I never asked him for anything, though I sometimes sent him information which had reached me and which I thought he should have.

President Wilson's inauguration in March 1913 was a great occasion for Princetonians, who journeyed to Washington in troops and battalions. I did not attend, but, a few weeks later, when the National Academy of Sciences held its spring meeting, I was invited to the White House, with my eldest daughter, and had a most interesting visit. As the National Academy is part of the government and is its official adviser in matters scientific, it is customary, after the inauguration of a new President of the United States, for the Academy to call at the White House and pay their respects in a body. The first time that I took part in this ceremony was in 1909, shortly after the inauguration of President Taft and the members of the Academy were astonished and indignant at their reception. Though Mr. Taft was an educated man and had lived in Washington for years, he seemed to have no idea as to who we were. We merely passed before him in line, shook hands with him and then filed out of the "Executive Mansion," as it used to be called.

Our reception by President Wilson in 1913 was in very marked contrast to that of four years before. He made a great occasion of it, pre-

sented the Academy's gold medals, with a few happy remarks for each. I remember his saying to Professor Milliken, then of the University of Chicago, as he handed him the medal: "I envy you, Sir." Many distinguished guests were there to help receive us and refreshments were served in the state dining room. That year was the Academy's semicentennial and there were appropriate festivities; among other things, the members and their families and the foreign delegates were taken down the Potomac on the President's yacht, *Mayflower*, to make a pious pilgrimage to Mount Vernon.

At the Commencement of 1913, Princeton University conferred an honorary degree upon Count Bernsdorf, the German Ambassador at Washington, and I had an amusing and enlightening encounter with his Excellency. President Hibben brought the illustrious candidate into the Faculty Room, where the academic procession was forming, and introduced such professors as were near the head of the column. The Ambassador was very genial and pleasant to every one, until he came to me and then his Excellency froze and became so stiff and repellent, as to be positively rude. For a moment, I was puzzled by the startling change in his behaviour, but I knew that it could not be personal, for he had never heard of me. Suddenly it occurred to me that he took me for an Englishman, because of my scarlet Oxford gown. His lack of *savoir faire* was astonishing, especially as his sudden rigidity was merely a pose; he could not have detested the individual Englishman so violently.

From my own particular point of view, the next memorable event of the year was the publication of my *History of Land Mammals in the Western Hemisphere*. Aside from technical, quarto monographs, this is the most ambitious of my books and was sumptuously produced by the publishers, who made a beautiful volume of it. They appropriated liberally for the illustrations, so that I could engage Mr. Horsfall to make the many restorations of extinct animals, which are the chief interest and ornament of the work. The book was much less successful than I had hoped; I received, it is true, many letters of approval and congratulation from fellow naturalists. Dr. C. Hart Merriam, for instance, wrote that he had long wished for just such a book, but had not expected it to appear in his lifetime. The newspaper notices were flattering and the New York *Evening Post* paid me the high compliment of reviewing the book in a long editorial, which declared that I had opened a new era in palaeontology. All this was very well, but the work has had only a *succès d'estime* and the sales have been small.

In October 1913, the Graduate College was formally opened. There was first a series of lectures by distinguished European scholars, Riehl, of Berlin, Shipley, of Cambridge, and Godley, of Oxford. The ceremony of dedication of the new college and of the Cleveland Memorial Tower was held in the great quadrangle, which was filled with camp-chairs. The whole court had been covered with a great awning, in case of rain, but a heavy gale of the night before had torn that to ribbons and wrecked it utterly. Fortunately, it was not needed, as the great day was blessed with the radiant serenity which we always associate with the American October. Former President Taft made the memorial address on Mr. Cleveland, which was admirable in tone and temper, especially in view of the political hostility between the two men. It was a very brilliant occasion and, in the course of it, Godley remarked to another Englishman: "These people certainly do understand ceremonial." In the evening a state dinner inaugurated Procter Hall, of which Shipley said: "This hall was five hundred years old the day it was finished."

Of 1914, the overshadowing event was, of course, the World War; the long-expected and long-threatening broke at last and proved to be, in both character and duration, far more terrible than any one had imagined it could be. We were at Cataumet in that dreadful time of suspense when the fate of the world was at stake, and also when the German avalanche almost reached Paris. Every morning, I discussed the situation with an Italian friend, who was a trained soldier and had been a member of the Great General Staff of Italy. He was very pessimistic and when, after reading the papers, he shifted his lines of coloured pins ever nearer to Paris, he would exclaim: "Ah! poor France! France is licked." Like all the professional soldiers I have known, he had unbounded admiration for the German army and thought it invincible.

On the morning of September 7, we read the glorious, though mystifying, news that the German advance had been stopped and turned back. The correspondents wrote of a wholesale defeat, a "retreat from Moscow," and predicted the early and overwhelming victory of the Allies, but this rosy vision soon faded away and we were left in a state of perplexity.

While the War lasted, I could not work, except for my routine duties; productive activities ceased altogether and the publication of the Patagonian Reports had to be suspended. So great was my anxiety over the situation in Europe, that I could hardly fix my attention on

anything else, and I was anxious for America to play her rightful part in the struggle, especially after the sinking of the *Lusitania*. Yet I had my reserves; so long as Russia was one of the Allies, I could not but feel a hesitation about joining them. I remember saying to a friend: "I only hope that the time may not come, when we shall be calling on Germany to help us against Russia." Nevertheless and in spite of everything, I wanted to get into the war against Prussianism.

My Brother was made Brigadier General and Chief of Staff in the autumn of 1914 and for the three following years, 1915-1917, I visited him at Fort Myer, on the Virginia side of the river, attending the spring meeting of the National Academy. At these times, I always had an appointment at the White House and half-an-hour's talk with the President. For the most part we avoided public affairs and had personal chats, which I greatly enjoyed and thought that he did also. It was a real relief to him to talk with some one whom he knew to be a sincere friend and admirer and who wanted nothing that he had to give and never asked for any favours. He loved a good story and enjoyed telling one, especially if it displayed the negro gift of picturesque repartee.

On one such occasion, I said to him: "Some day I am coming here to give a public lecture on Congress, into the history of which I have been making inquiries. I find that from the time of President Washington to that of President Wilson, Congress has never been anything but a herd of wild asses." Much to my surprise, he made no effort to combat this conclusion, nor did he even laugh at it. Accepting it gravely, he said: "The trouble is that our system makes no provision for leadership." The following year, I told him of my rule never to quote Mr. Cleveland and added: "I have followed the same rule with regard to you, but have made an exception of what you said to me as to the lack of leadership in Congress. I hope you don't object." "Not at all," he answered, "on the contrary, I should like to have that spread as widely as possible."

Hanging in the President's office was a large map of the Western Front, with coloured lines to indicate the trenches of the various belligerents. Mr. Wilson was much impressed with the fixity of those lines which, after nearly two years of incessant fighting, showed hardly any change of position. Save in this objective and colourless fashion, he never mentioned the War to me, until we were in it ourselves. *Then* his neutrality disappeared very completely, giving way to an inexorable determination to put an end to the Prussian menace. How thoroughly that determination was carried out, needs no retelling of mine.

In 1915, I lectured at the summer school of the University of Colorado, a part of the state which I had last visited in 1886. I was very much struck with the progress of the region in all lines of civilisation; the amount of permanent improvement accomplished in so short a time quite astonished me. All that summer, which, by the way, was unusually hot for the Colorado mountains, we were in a state of great anxiety over the German advance through Poland. Every day, we were expecting to hear of some catastrophe to the Russian army, which would practically eliminate Russia as a belligerent. That did not happen, however, till two years later and then by the unexpected way of revolution.

After the summer session had ended, I went to San Francisco, where I had been invited to make one of the addresses before the American Association for the Advancement of Science. I travelled by the Union Pacific, which I had not seen for nearly thirty years. I was astonished at the complete reconstruction which Harriman had effected, shortening and straightening the line, eliminating grades and curves, double-tracking, etc., etc. It was a remarkable achievement, especially the "cut off" which had been built across Salt Lake. San Francisco I found to be greatly improved since my visit of 1889. The "Panama Pacific Exposition," in celebration of the opening of the Panama Canal, was in progress and interested me greatly. Of course, the War prevented the attendance of any considerable number of European visitors. Even before hostilities began, several European governments had refused to take part.

There were special days, which brought together the foreign-born residents of California. On the evening of one such day I found myself in a great crowd of Germans in the ferry house at the foot of Market Street and I heard them soberly rejoicing over the capture of Warsaw, news of which had just arrived. Shortly afterward I received an exultant letter from Fritz Winter, junior partner in the lithographic firm of Werner and Winter, of Frankfort o. M., with which I had had such extensive dealings. The letter was written from the German army on the Russian front and displayed complete confidence in the eventual triumph of the German cause. It said (in effect): "Our troops are now far into French and Russian territory and soon will put Russia and France out of action; then it will be the turn of the supposed power of England ("dann geht es gegen die vermeintliche Macht Englands"). The writer was killed in battle shortly after this letter was written, and lies in Polish soil; he was, at least, spared the humiliation of seeing his Fatherland go down in defeat.

When Justice Hughes was nominated for the Presidency by the Republicans in 1916, I wavered, for a time, in my allegiance to President Wilson, in the hope that Mr. Hughes might carry us into the War. But Mr. Hughes' speeches, especially his formal address in acceptance of the nomination, soon drove me back to Wilson, for the Republican candidate seemed to have no ideas or policy of his own and to be satisfied with railing at the Administration. At the August meeting of the Trustees of the Marine Laboratory at Wood's Hole, Mass., Mr. Charles R. Crane, president of the board, had us all at his house for luncheon. Mr. Crane expressed the feeling of almost every man present, when he told us that he had written to Governor Hughes, saying that he hoped to vote for him at some future time, but could not do so at that juncture. Nevertheless, the country seemed to be displeased with the Democrats and determined to have a change. The betting odds, an almost infallible forecast, were against the President from the beginning, though diminishing as the campaign progressed. For some days after the election, it seemed that Hughes had surely won, for he had carried New York, Pennsylvania, Ohio and Illinois, to mention only the largest states, but California turned the scale against him.

When Congress formally recognized a state of war with Germany, the Russian revolution had overthrown the imperial government and this enabled us to enter the struggle whole-heartedly and without reserve. Like many other people, of both parties, I hoped and expected that the President would form a coalition administration, as Lincoln had done in the Civil War and as nearly all the Allied governments were then doing, but he could not overcome his repugnance to Republican politicians and would not admit them to his Cabinet. I cannot but think that this was a great tactical mistake. President Masaryk, of Czechoslovakia, tells in his *Memoirs* of his call upon President Wilson at the White House and expressing his surprise that Mr. Wilson did not summon members of the opposition to his Cabinet, as had so generally been done in Europe. The American President merely replied: "I come of Scotch Presbyterian ancestors and I am stubborn." (Masaryk gives that last word in English.)

Mr. Wilson has been much criticised for leaving the country so unprepared for war, but I do not think that any feasible preparation could have been a factor of importance, when war actually came. Be that as it may, the conduct of the war by his Administration was far superior, as it was on an incomparably larger scale, to any similar effort in our history. For the first time in that history there were no political gen-

erals, and the Commander in Chief in France was given an entirely free hand in his plans, his policy and his appointments. The vast sums of money raised by the successive Liberty Loans were expended without scandal, likewise a refreshing innovation in our history. But I am not attempting to write the story of our participation in the war; I have merely wished to point out certain facts, which are generally ignored or overlooked because of personal or partisan malice.

Almost immediately after our entrance into the war there arrived missions from Great Britain and France, one headed by Mr. (afterward Lord) Balfour, the other by Marshal Joffre. I was in touch, indirectly, with the English mission and heard much that never found its way into print. The facts were alarming and indicated that, without prompt help, material and financial, the Allies must acknowledge defeat. When Admiral Sims reached London and learned what the submarines were actually accomplishing, he was appalled and reported to Washington that the Germans were winning the war. The whole situation was much more nearly desperate than our public had any conception of. Unless our Treasury had assumed the loan, the British Government would have defaulted on the $400,000,000 which they owed to J. P. Morgan and Co. Altogether, as the missions frankly admitted, without American help the war was lost, a fact which nearly all English and French writers have conveniently forgotten.

The American people and, by no means least, the German-Americans, excited my admiration by the whole-hearted way in which they threw themselves into the struggle and cheerfully submitted to every sacrifice and inconvenience which the Government asked of them, and stinted themselves in order to make up the depleted food supply of the Allies. The Government, very wisely, I think, made suggestions and requests, rather than gave orders. The people who would have refused to be driven, very willingly followed their leaders and carried out their requests. We cut down our allowance of wheat flour and mixed what was left with all sorts of substitutes, oatmeal, cornmeal, potatoes, etc., etc., and with surprisingly palatable results. We almost entirely gave up the use of sugar. Potatoes were very scarce in the spring of 1918 and I well remember buying a quart of potatoes and a quart of strawberries and paying nearly the same price for each.

On certain specified Sundays, no motor car was permitted to run on the highways, save in cases of urgent necessity, in order to save gasoline for the military and naval services. There was no order given, merely a request from the War Department, but it was wonderfully

effective. On those Sundays the roads were almost completely deserted, in most striking contrast to their usual crowded state on holidays. The people did their own police duty on the roads and it went hard with any motorist who could not show very good cause for his disregard of the Government's request. In the Cataumet post office I saw a printed handbill, calling on the grocers of Barnstable County not to sell sugar to two women, whose names were mentioned, because they had clandestinely exceeded their allowance.

Since the war, I have heard complaint that all this self-inflicted annoyance and deprivation (there never was any question of real hardship) was unnecessary and that there were abundant food supplies for all the Allies and ourselves as well. Such criticism, however, overlooks the fact that the "Allied and Associated Governments" expected the war to continue, at least to the summer of 1919, and that the submarine peril was mastered sooner than had been anticipated. The small amount of self-sacrifice which was asked of us hurt nobody and enabled even the noncombatants to feel that they were doing something to help win the war. Servants, especially those of Irish birth or descent, were the most recalcitrant and often refused to stint themselves of anything they wanted; our coloured servants accepted the restrictions without the least complaint.

The passage of the conscription act and the formation of the immense armies emptied the colleges and universities; the students and all but the oldest professors entered the services wholesale. These institutions, especially the privately endowed ones, would have been crippled for years had not the Government given efficient help by establishing and paying for training schools of different kinds in the colleges. At Princeton there were three such units, each with one commanding officer. There was the Officers' Training Corps, Infantry; the Ground School (U. S. School of Military Aviation) which had its seat in Guyot Hall and in two immense temporary structures to the south of that building. I was glad to give up my own room to the aviators, but it involved real sacrifice, for my books and papers were hastily stowed away and many of them I never saw again.

A training corps for naval paymasters, under the command of Admiral Goodrich, occupied the Graduate College. As the course of instruction in the Ground School took only six weeks, there was a continuous stream of students passing through it and, at any given moment, there were some 2,500 men present in the various training corps. This enlightened policy on the part of the Government enabled

the colleges to maintain their equipment and pay such instructors as did not enter one of the services and thus, when the war ended, to resume their normal functions without loss or delay. When the academic year, 1917-1918 began, there were only about fifty civilian students in Princeton University and they were men who were physically unfit for military service. Not since the Revolution had the student body been so depleted.

The Commencement of 1917 was a brilliant occasion of great historic interest. Fortunately, the weather was perfect, for the ceremony was held on the campus, with the platform built along the front of Nassau Hall. Degrees were given to the Ministers and Ambassadors of all the Allied powers, except the Serbian Minister, who declined to come, as he had been overlooked in the first invitation. The principal address was made by the British Ambassador, Lord Reading, formerly Sir Rufus Isaacs, who amused us all by talking about "our Anglo-Saxon ancestors." M. Jusserand made one of his characteristically happy little speeches, ending with the hopeful phrase: "And it must be remembered that the United States has never lost a war."

As usual, I spent the summer at Cataumet and, as a small contribution to the war work, I took charge of the vegetable garden which was fairly large, an acre or so in extent. This took nearly all of my time, for such were my anxiety and preoccupation with the war that I was incapable of doing any considerable and sustained mental work, and the manual labour was a blessed relief. Recalling all the horticultural lore that I had acquired in boyhood, I did very well with the garden and kept the family abundantly supplied with a great variety of delicious vegetables. The second summer, that of 1918, I repeated the experiment and made the garden contribute more directly to the support of the war. Every week, the ladies, mostly of the summer colony, met to do Red Cross work, and to every such meeting I sent a consignment of vegetables. These were promptly sold, at good prices, and the proceeds turned in to the Red Cross fund. I have kept up my gardening ever since.

When we returned home, in September 1917, we found the various training units in full operation and a French captain, in "horizon blue," to aid in the work of instruction. There was but little that I could do and I felt very useless and helpless. By request, I gave a course of lectures on the strategical use of topography, of which I had made some study, and other lectures on geographical subjects, as they were called for by the R. O. T. C. The few clubhouses that were still open were

used as officers' messes, and the young men in training took their meals in the dining halls of Madison and the Graduate College.

Early in the autumn, very soon after the new railroad station was finished and the old one removed, an educational mission arrived from England, to make a study of the larger colleges, westward to St. Louis and as far south as New Orleans. The mission, which included our friend Shipley, then recently chosen Master of Christ's College, Cambridge, and a newly dubbed knight, was formally received in the Faculty Room, Nassau Hall. Shipley's address was characteristically humourous; he remarked that knighthoods were then flying about so thick and fast in England, that it was difficult to escape them and he had not succeeded in doing so. I don't imagine that he tried very hard, for very few people really dislike honours. For the first time since 1777, the British flag was hoisted over Nassau Hall. With the bane of inaccuracy, which seems to mar almost all British attempts to describe things American, the London *Times* declared that the union jack flew over Nassau Hall for the first time in 177 years! This is pushing the Revolution back considerably.

Pyne gave a luncheon to the mission at his house, to which I was invited. At table, I sat next to that most genial of philosophers, Sir H. A. Jones, of Glasgow, whose acquaintance I had made some years before when he lectured in Princeton. He showed me the itinerary of the party, with a list of all the places to be visited and the date for each, a most formidable document. As I handed it back to him, I asked: "And where are you arranging to meet the undertaker?" He laughed and replied: "That is too serious a matter to jest about."

Our second daughter, Mary, completed her training as a nurse at St. Luke's Hospital, New York, in the fall of 1917 and immediately entered the military service by way of the Red Cross. She was first sent to Camp Hancock at Augusta, Ga., and subsequently to France, to "Base Hospital 53." We did not learn, while hostilities lasted, that this hospital was at Langres, near Chaumont, where General Pershing's headquarters were. She did not get home till June 1919, after a most interesting experience, which is but imperfectly recorded in her hurried letters, written always with the fear of the censor before her eyes.

The Germans seemed to have a great "pull" with the weather authorities. We had repeatedly read complaints in the British and French reports of the way in which the German operations, both of attack and defence, had been favoured by the weather conditions. The winter of 1917-1918, the first after our entry into the war, was the coldest ever

known and terribly retarded transportation which was almost at a deadlock, and we congratulated ourselves on having moved into a very small house, where the half-ton lots of coal, all that we were allowed to buy, sufficed for a considerable period. Food supplies never ran short.

In February I had to go up to Cataumet on business, going by train and returning, or trying to, by the Fall River boat. My journey reminded me of General Sherman's account of the two roads over the Cumberland Mountain, in Tennessee: "Which ever one you take, you wish you had taken the other." My train arrived in Boston so much belated that I missed the connection for the Cape and had to wait till the next morning. The following night, I left Fall River by the steamer, but was awakened early in the morning by the stopping of the boat. I waited till daylight, then dressed and went out on deck and there saw such a spectacle as I never saw before or since. Long Island Sound, as far as one could see in any direction, was a mass of ice and we lay in it almost helpless, for the boat had broken one of her paddle wheels against the ice. Finally, we limped slowly into New London and were put ashore there, where we had a long wait for a train, another and longer wait at New Haven, eventually reaching New York six or seven hours late.

Soon after that time, the first of the great German drives began and we were all appalled at the speed and power of the advance. That drive stopped within 1,700 yards of complete success. Amiens would have been taken, the French and British armies separated and German victory would have followed. I have read accounts of German eyewitnesses, who declare that the drive was not stopped by the enemy but by the irresistible temptation to loot. The soldiers, half starved by substitute rations, could not resist the sight of real food and stopped to plunder. All through that spring and up to July 14, the date of the last German advance, we were in a state of continual anxiety, as great as that which had burdened our hearts in August and early September 1914, when it seemed as if nothing could save Paris.

When Foch began his series of counterattacks, anxiety gave way to triumphant relief. From then till the Armistice, not a day's papers failed to bring news of a success against the enemy somewhere. We were all especially elated by the fine showing of the American troops; the American soldier has no superior, but I had feared that the hastily improvised corps of officers would not prove equal to their task, but my fears were not justified. The intensive methods of training adopted proved sufficient, on the whole; of course, there were many failures,

but a wonderfully efficient body of officers, all things considered, was turned out in an incredibly short time. Needless to say, this could not have been done without the aid of the British and French instructors both in this country and in France. As my Brother was in command at Camp Dix, one of the great training stations, I was able to see something of the system.

Early in the autumn it became evident that an end of the whole abominable business was fast approaching and the denial of the first announcement of the Armistice could not check the hopeful assurance of victory. In New York, Fifth Avenue was temporarily renamed "the Avenue of the Allies" and was a mass of brilliant colour from the countless flags of the Allied nations, which hung from nearly every window. From the top of a bus the view up to 59th Street was one of the most extraordinary that I have ever seen.

When the peace conference met at Paris I think nearly all of President Wilson's real friends and well-wishers were grieved and dismayed, both at his unfortunate appeal to the country to return a Democratic Congress and at the make-up of the peace commission. His intense partisanship made it impossible for him to give the Republicans a fair representation, thus inviting the disaster which eventually wrecked his plans. I am convinced that, had the commission contained Mr. Root or Senator Lodge, we should have entered the League of Nations. To say that, as a patriotic American, I have been mortified by the timid, vacillating, oftentimes stupid conduct of our foreign relations by President Wilson's successors, is expressing it mildly. It is not pleasant to have our country looked upon as a "quitter," firm only in the collection of debts.

I saw President Wilson for the last time in April 1921, when I was in Washington for the meeting of the National Academy of Sciences. I called on him, by appointment, at his new house and found him surprisingly little changed by his long illness and as keen and brilliant as ever. For nearly three-quarters of an hour, we talked of men and things, saying little of politics or the European situation. He seemed so completely his old self, that I hoped and expected that he had many years of life before him and I did not imagine that my farewell to him was to be the final one.

The family chronicle of 1917-18 was crowded with events, though the all-absorbing topic of the War somewhat overshadowed them. Our youngest daughter, Angelina, was married to John Giraud Agar, Jr., in May 1917 and our oldest daughter, Adeline, to his brother, Herbert, in

February 1918; these were sons of the distinguished New York lawyer, Mr. Agar, who was so active in all enterprises for the city's betterment. Our first grandchildren were born a month before the Armistice—Adeline's son, W. B. S. Agar, on October 9, and his double first-cousin, Joan, on October 13, 1918. "Jack" Agar, whom we all admired and loved, entered the Army Aviation service and, after a year's training, was sent to the front in France, where, to our unspeakable grief, he was killed (October 17) leaving our young daughter a widow at twenty-three. The third and last grandchild, Agnes McDonough, was not born until June 3, 1922.

In April 1918, I received the high honour of election to the presidency of the American Philosophical Society, an office which I held with great interest and pleasure, until the statutory limitation of seven years was reached in 1925. That year I was elected President of the Geological Society of America, the last of such honours that I am likely to obtain. The Philosophical Society then held monthly meetings as well as the Annual General Meeting in the spring. It was my remarkable good fortune, that I was never compelled, by ill health or stress of weather, to fail in attendance at a meeting, though, on one occasion, only the President and one of the Secretaries were present.

To me, however, the greatest change brought by the lifting of the threatening war-cloud was the restored tranquillity of mind that enabled me to resume my work. After an interval of several years, the publication of the Patagonian Reports was again taken up and finally concluded, more than thirty years after the appearance of Volume I. Whenever I look at the stately row of fifteen quarto volumes, I find it a source of profound gratification and thankfulness that my life was spared to bring Hatcher's great enterprise to so happy a conclusion. Of the many collaborators who took part in this undertaking, only one or two are left.

The years 1919 to 1925 yielded little that called for recording, though they were happily occupied with the work of classroom and laboratory and the researches which are the spice and joy of life. The summers were all spent on Cape Cod, where the garden filled the mornings, reading and writing the evenings, and where the finely developing grandchildren were so happy. A major surgical operation in 1924 has given me fifteen years (and I hope many more) of vigorous health. Sinclair's many collecting trips to the fossil-bearing regions of the West brought in much material from which I am still profiting. From one such expedition he

brought back to Princeton Mr. Glenn L. Jepsen, in whom he took the deepest interest. After taking his bachelor's and doctor's degrees here, Mr. Jepsen became Sinclair's assistant and has been his successor since 1935.

My dear friend Frank Speir died on March 11, 1925; from September 1873 when we were entering Freshmen together, our friendship remained unbroken till the end.

CHAPTER TWENTY-NINE

IN CONCLUSION

THE narrative ended in 1925 and has remained unfinished till April 1939—the remaining fourteen years can be covered in a few pages.

The penalty for remaining alive is the loss of dear ones, friends and relations, who drop away one by one. On March 21, 1926, we lost our beloved and only son Charles, whose life was a record of disappointments and hopes deferred, but of unblemished honour.

A few weeks later I sailed for Cherbourg on my way to Madrid for the International Geological Congress, arriving there on May 10. The more important excursions before the Congress had all been filled and, perforce, I had to take one that, geologically speaking, was farcical, but fascinating from every other point of view, for it enabled me to visit Granada and the Alhambra, Cordoba, Seville, Toledo, and the Escorial. The Congress was opened on May 24 by the King in person and occupied a week, with two days out for the excursions to the Escorial and Toledo. No outstanding papers were read and the visitors were more engaged in sight-seeing than in attending the sessions. There was a very striking contrast between the admirably efficient way in which the excursions were managed and the dilatory, slipshod methods of the Madrid secretariat. Letters and telegrams were delivered by scattering them on the floor; one example is the notice of my appointment as one of the delegates of the U.S. Government to the Congress, which reached me after my return home. The excursions had been put in the hands of the *Wagons Lits* by contract.

Happening to have with me my scarlet gown, which I was taking to Oxford for repairs, I ventured to wear it at the opening ceremony and was well rewarded, for the Papal Nuncio and I were much the most conspicuous persons present and the ushers, thinking that I must be "somebody in particular," came to me where I was sitting in the audience and made me change to "the seats of the mighty" near the King.

Another very interesting occasion was the reception of the Congress by the King, the Queen and several of the Royal Family at the Palace, on which Napoleon congratulated his brother Joseph, saying that the latter was much better lodged than he was himself at the Tuileries in Paris. At the reception, the Queen Mother repeatedly called attention to the ceiling of the throne-room, which was painted by Tiepolo and in which she evidently took great pride. I had the honour of presentation to the great Primo de Rivera, then at the height of his dictatorial powers, and delighted him by my enthusiasm over the beauties and wonders of Spain. An immense man, both in altitude and circumference, his thin and squeaky voice seemed very incongruous, but significant, for the impression that he made was of a man without force or character. Of my extremely interesting visit to Germany I have already spoken, but must give some account of the stay in England which followed.

In addition to attendance at the Madrid Congress, the principal object of my journey to Europe was to examine the great collection of photographs made by the Geological Survey of Great Britain and see what could be utilized in the proposed third edition of my *Geology*. Sir John Flett, Director of the Survey, I had met in Madrid and to him I explained my plans for a visit to London. He was very kind and assured me that I was heartily welcome to make use of any of the Survey's photographs, the negatives of which were all available. When I arrived in London on June 30, I found it so jammed with tourists that it was with the greatest difficulty that I could find a place to sleep. However, after some hours of telephoning, the American Express Company finally secured a room in the mansard roof of the Hotel Cecil and there I thankfully remained for the next ten days. After a visit to Oxford, I began my examination of the many thousand views in the Survey albums.

The offices of the Geological Survey of Great Britain were still in the old Museum of Practical Geology in Jermyn Street and the building was so near collapse that it was necessary to shore it up with massive timber frame-work, which made circulation difficult in the Museum. The fine new marble building in South Kensington was not quite ready for use. Sir John Flett was still absent from London, but the Assistant Director Dr. J. Allen Howe, received me with the utmost cordiality and placed the great photographic collection at my disposal and the work of study and selection filled all the daylight hours for a week. Dr. Howe had prints made for me and sent them to Princeton after my return home, a

collection far larger than I could use in the book, but the others, mounted in an album, were valuable for teaching purposes.

An invitation to attend the William Smith celebration in Bath led to my first visit to that beautiful and most fascinating place, which has so large a part in English literature. The celebration of the "Father of British Geology" was attended by a small number of interested people who, after a luncheon in the Guildhall, given by the Lord Mayor, listened to an address in the Bath Institute by F. A. Bather, President of the Geological Society of London. This excursion also enabled me to see, for the first time, Salisbury, Stonehenge and Winchester. On July 13 I sailed from Southampton by the *Leviathan,* which had brought me over in May. The novel experience of "Tourist Third Class" proved to be very pleasant and my fellow voyagers were a very interesting lot of people, much more so, I was assured, than were to be found in the First or Second Cabin.

In the hunt for a wider variety of photographs for the new edition I spent many days going through the vast collection of the U.S. Geological Survey at Washington and, in the spring of 1928, followed this by a visit to Ottawa for a study of the material gathered by the Canadian Survey. Director W. H. Collins was most kind and helpful and made my visit to the Canadian capital a memorable one, beginning a friendship that endured until his lamentably early death. He was my guest at Princeton on the way to the Congress at Washington in 1933 and we were roommates in the overcrowded Wardman Park Hotel. Both at Washington and at Ottawa the difficulty was in making selections, for incomparably more was available than could possibly be used.

One of the younger members of the Department of Geology, Professor Richard Field, devised a novel summer "school on wheels," for which the Pullman Company built a club-car, the *Princeton.* In these comfortable quarters a party of twenty or so, undergraduate and graduate students, instructors and some distinguished foreign guest, made journeys of 10,000 miles, through the United States in one year and Canada the next, visiting regions that were of particular interest, either geologically or economically. On Field's invitation, I joined the excursion of 1929 and enjoyed an unusual experience (for me) seeing much of geological interest and making many photographs which proved to be useful. We visited the pegmatite region in Maine, the coasts of the Bay of Fundy in Nova Scotia and New Brunswick, Chaleur Bay and the lower St. Lawrence, and had a very interesting stop at Quebec, which I had not seen before, and went out to the Falls of Montmorency, which I was

particularly anxious to see, for my Mother had been there as a young girl, in 1845, I think, and often told me of it. From Quebec we went to the newly opened copper mines of Noranda and thence to Winnipeg, where I left the party and turned back to Chicago, having there an appointment with my friend and one-time pupil, E. S. Riggs, of the Field Museum. On behalf of the Museum, Mr. Riggs had made some highly successful collecting expeditions to South America and had some wonderful things to show me, which he subsequently entrusted to me for description and publication, thereby earning my enthusiastic gratitude. After the first day's experiences in the Museum, I wrote to my oldest daughter Adeline, who had taken her family to London for a three years' stay, of a marvellous experience.

Of the disastrous stock-market collapse of October 1929 it would be superfluous to speak, for the lapse of ten years has brought little improvement and, like millions of other people, we had to put up with drastic reductions of income, and these were not helped by my retirement from active service at the Commencement of 1930, which marked the close of the half-century since my appointment in 1880. I submitted, with much reluctance (not diminished by the consolation prize of an honorary degree) but with such grace as I could assume, to the inevitable effects of merciless Time, yet found a large degree of consolation in the complete freedom to devote all my efforts to my palaeontological studies. From a purely personal, not to say selfish, point of view, the chief element in the successful pursuit of happiness is to have an abundance of work that one enjoys doing, assuming, of course, satisfactory "domestic relations." The task immediately at hand was the preparation of new editions of my *Geology* and *History of Land Mammals,* both of which demanded complete rewriting, and then there were ambitious plans for palaeontological monographs which involved great labour and large expense and which were made possible only by the generous policy of the American Philosophical Society.

President Hibben's resignation in 1932, at his fiftieth reunion, was soon followed by his tragic death in a motor accident. With his successor, Dr. Harold Dodds, I have had hardly any contact at all, being without official duties, but everything that I hear promises one of the outstanding administrations in our history.

The winter of 1932-33 we spent at Cataumet and were much more comfortable than might have been expected; throughout the winter I made the round trip of 120 miles to Cambridge on every week-day, and

lost no days from accident or bad weather. There, in the fine library of the Museum of Comparative Zoölogy, I prepared a bibliographical catalogue of all work on American fossil mammals since 1913, as the first step toward the new edition. Dr. Thomas Barbour, Director of the Museum, most kindly made me a daily guest at the luncheon which he gave to the Museum staff in his office and I had many delightful meetings with distinguished visitors and other interesting people. Thus was overcome the lack of any library at Cataumet. Concomitant with this rewriting and giving indispensable aid to its execution, was another undertaking, for which the Philosophical Society voted me a liberal "grant in aid." This was to prepare a fully illustrated monograph on the fossil mammals of the White River Oligocene, more particularly those of the "Big Bad Lands" of South Dakota and the similar regions of Nebraska and Colorado. Into this fascinating country I had made my first expedition in 1882 and had taken the keenest interest in the work done there by the principal museums of the United States and Canada. White River fossils have been famous the world over for their abundance, variety and beauty of preservation, ever since 1847, when the fur-traders began to bring specimens to St. Louis. For many years the work of describing and figuring these fossils was in the hands of the famous Dr. Joseph Leidy in Philadelphia, of whom I have spoken before. Leidy's great quarto of 1869 remains the stable foundation upon which an immense body of subsequent work, by many hands, has been erected.

My beloved Brother died on April 30, 1934, just before I started out on the tour of the museums. It is a changed world without him.

My plan was to visit the principal museums of the country in which notable collections of White River fossils were to be found, and make studies, especially drawings, of the best material there available. The most important part of this undertaking would necessarily be the plates, for, as Professor Marsh once said (I quote from memory), "the best text must become antiquated in the course of time, but good figures are a permanent contribution in all departments of natural history." Accordingly, I invited the distinguished artist, Mr. R. Bruce Horsfall, to make the drawings for the plates and, happily, he was in a position to do this. Mr. Horsfall's generous and unselfish collaboration with me has extended over many years and has been one of the most important and favourable factors of my work. He made the drawings for nearly all the plates of fossil mammals and birds in the volumes of the *Patagonian Reports*. The illustrations, other than photographs, of the second and

third editions of my *Introduction to Geology* and both editions of my *History of Land Mammals in the Western Hemisphere* were made by him. Mr. Horsfall accompanied me in the tour of the museums in the spring and summer of 1934. We began with the Carnegie Museum in Pittsburgh, then went to the Field Museum in Chicago, the Morrill Museum of the University of Nebraska at Lincoln, Neb., the Colorado Museum of Natural History at Denver, the museum of the State School of Mines, at Rapid City, S.D. In the autumn, we resumed our travels and visited the museums at Amherst College, Yale and Harvard Universities, and the National Museum at Washington. To the American Museum of Natural History in New York we made daily visits for many weeks and, of course, we had a great deal of work to do in our own museum at Princeton, which contains one of the largest and finest of the many White River collections, thanks to the brilliant work of Hatcher and Sinclair.

The immense enterprise was too much for my unassisted strength and so my former pupil and present colleague, Professor G. L. Jepsen, has collaborated with me in the preparation of parts of the monograph and another one-time pupil, Dr. Albert E. Wood, has written Parts II and III on the rodents and rabbits of the White River fauna. Sinclair always maintained that we didn't know what a task we had undertaken and that we were "biting off more than we could chew." By relieving us of work for which we were not well fitted, Wood has made possible the completion of the *magnum opus,* the end of which is now (April 1939) in sight.

Another large undertaking was a new edition of my *Land Mammals,* which the publishers declined to assume, because of the uncertainties in business prospects. Once more, the Philosophical Society came to my aid and appropriated $7,000 to finance the work, which had to be rewritten completely, for in the twenty-five years that had passed since the publication of the first edition such an immense body of new discovery and material, in both North and South America, had been accumulated that the old book was entirely out of date and could not be patched. The Society's liberality gave me an opportunity to reillustrate the book on an adequate scale; the new edition has 420 figures, two-thirds of them new and mostly Mr. Horsfall's work. The two projects, the monograph and the new edition (really a new book) have been mutually helpful and, to both, our pilgrimage among the museums has been an indispensable preliminary, for only in this manner could much of the finest material

have been accessible. The unstinted hospitality of the museums was supplemented by the kindness which sent us many transportable specimens for fuller study and more elaborate illustration.

While our tour was replete with delightful experiences, our pleasure was sadly diminished by the effects of the great drought which were so distressingly visible in Colorado, Nebraska and South Dakota; the "Dust Bowl" proper we did not see.

Another great sorrow befell me in October 1935 in the death of Harry Osborn, which, happily, was most calm and peaceful. These memoirs will have been written in vain, if there should be any doubt as to the close relations of mutual affection between us for nearly sixty years. In Davidoff's phrase, which always amused him so much, it must henceforth and to the end be "Scott ohne Osborn."

On my eightieth birthday, February 12, 1938, my friends gave me a delightful dinner in Procter Hall, of the Graduate College, and I may bring this rambling narrative to a fitting end by repeating the substance of the concluding remarks that I made on that occasion. The speech was necessarily impromptu, for I could not know, in advance, to what I should have to reply, and no note was made of anything there said, but I do remember saying: "I have long striven, and with some measure of success, to cultivate 'a mind at leisure from itself.' If I may, without presumption, I should like to appropriate to myself the phrases that Darwin used near the end of his life: 'I feel no remorse from having committed any great sin, but have often and often regretted that I have not done more direct good to my fellow creatures.' Yet I console myself with the idea which George Eliot expressed at the end of *Middemarch*, in words which have long been a kind of motto to me: *'For the growing good of the world is partly dependent upon unhistoric acts; and that things are not so ill with you and me as they might have been, is half owing to the number who lived faithfully a hidden life, and rest in unvisited tombs.'"*

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